

**An Interpretive Approach to Digital Divide
Policy-Making:
A Comparative Study of China and Taiwan**

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Declaration

I hereby declare that this thesis was composed by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or professional qualification except as specified.

Shulin Chiang

Abstract

This thesis investigates how problems for policy become defined as well as how policy responses are subsequently designed to address these problems. It was motivated by the substantive concern that existing literature on digital divide policy is derived from Western countries, and embedded within Western rationales. In contrast, the way in which digital divide policy is made in developing countries had received relatively little attention. In light of this gap in the literature, empirical research was carried out on the development of digital divide policy-making, highlighting policies from two developing countries as examples: *Cun Cun Tong* (providing every village with a telephone and internet connection) Policy in China and Digital Opportunity Centre/APEC Digital Opportunity Centre in Taiwan.

Theoretically, this research adopts an interdisciplinary rationale, combining an interpretative approach from the field of policy research and key concepts from Science and Technology Studies. It aims to overcome a shortcoming of much traditional research on the digital divide which, in its commitment to its substantive concerns has been un-reflexive in its approach. This thesis demonstrates how an interpretative approach can produce new insights into digital divide policy from a more critical perspective. It elucidates how understandings of the digital divide are articulated (initially in discussions in the USA and the European Union) and become promulgated through international organizations during the early 1990s to the year 2005, and how they are then ultimately 'domesticated', becoming embedded within particular national contexts and policy discourses.

Methodologically, this research adopts a strategy of triangulation. It combines various modes and methods of enquiry: discourse analysis of policy documents is supplemented with interviewing policy-makers. Interviews are used to obtain first-hand materials which throw light on the orientation and context of the various actors who participate in policy-making and their concerns/discourses during policy-making. Finally, there is an analysis of policy outcomes. This research also contributes to opening the black box of policy-making, particularly in China, a context which presents particular challenges for the researcher.

Empirically, the findings provide an in-depth understanding of digital divide policy-making in developing countries. Firstly, it is demonstrated that international and national contexts matter in digital divide policy-making. Policy similarities can be explained by both the international context and local context. International policy discourses provide commonly available intellectual resources, whereas similarities in local contexts, for example a shared technocratic tradition. These international and

national contexts also impact on the participants who are involved in digital divide policy-making, for example, the technocratic tradition of China and Taiwan is a factor underpinning the choice of policy participants with science and technology backgrounds. These participants then learn and exchange experiences from international organisations and other countries through international conferences, official policy websites, and personal contacts. Secondly, the study found that the relationship between discourses and policy-making is by no means as straightforward and linear as some interpretations of discursive shaping might imply. Discourses may have influences on policy development; however some inclusion strategies arose within domestic departments in advance of alignment with international digital divide discourses, as a result of pre-existing concerns within the national policy settings. A third, and related finding is that there is a gap between policy formation and policy implementation, the exploration of which reveals the complexity of policy discourses. For example, some policy texts were found to emphasise social development, whereas the implementation predominantly centres on the equipment of infrastructures. Finally, the most crucial contribution of this thesis is its development of an interdisciplinary interpretive approach to scrutinise digital divide policy. This provides a basis for future research in this area, as well as a means to address the limitations of existing approaches.

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List of Abbreviations

ADOC	APEC Digital Opportunity Centre
APEC	Asia-Pacific Economic Cooperation
CAS	Chinese Academy of Sciences (China)
CASS	Chinese Academy of Social Sciences (China)
CCP	Chinese Communist Party
CEPD	Council for Economic Planning and Development (Taiwan)
CH	China
CNNIC	China Internet Network Information Centre (China)
DARC	(State Council) Development and Research Centre (China)
DD	Digital Divide
DGBAS	Directorate-General of Budget, Accounting and Statistics (Taiwan)
DGT	Directorate General of Telecommunications (Taiwan)
DOC	Digital Opportunity Centre
DOT	Digital Opportunity Task
DPP	Democratic Progress Party (Taiwan)
EC	European Commission
EU	European Union
G8	Group of Eight
GDP	Gross Domestic Product
GIO	Governmental Information Office
ICTs	Information Communication Technologies
III	Institute for Information Industry (Taiwan)
INEP	Informatisation of the National Economy Programme
IT	Information Technology
ITRI	Industrial Technology Research Institute
ITU	International Telegraph Union
KMT	Kuomintang (Nationalist Party) (Taiwan)
MEI	Ministry of Electronic Industry (China)
MII	Ministry of Information Industry (China)
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOEA	Ministry of Economic Affairs
MOF	Ministry of Finance
MOST	Ministry of Science and Technology (China)
MOTC	Ministry of Transportation and Communications (Taiwan)

MPT	Ministry of Post & Telecommunications (China)
NDRC	National Development and Research Commission (China)
NICI	National Information and Communication Initiative (Taiwan)
NII	National Information Infrastructure
NSC	National Science Council (Taiwan)
NTIA	National Telecommunications and Information Administration
OECD	Organisation of Economic Cooperation and Development
OEM	Original Equipment Manufacturer
PTAs	Posts & Telecommunications Administrations
RDEC	Research, Development, and Evaluation Commission (Taiwan)
ROC	Republic of China, Taiwan
SARFT	State Administration of Radio, Film and Television (China)
SCIO	State Council Informatisation Office (China)
SCOT	Social Construction of Technology
SDPC	State Development Planning Commission (China)
SST	Social Shaping of Technology
SSTC	State Science and Technology Commission
STAG	Science & Technology Advisory Group (Taiwan)
STS	Science and Technology Studies
TW	Taiwan
UK	United Kingdom
UN	United Nations
UNCSTD	United Nations Commission on Science and Technology for Development
US	United States
USF	Universal Service Fund
WSIS	World Summit on Information Society
WTO	World Trade Organisation

A Note on Romanisation of Chinese Terms and Names

In this thesis, two systems of Romanisation of Chinese terms and names are used: the Wade-Giles system and the Pinyin system. The Wade-Giles system is most frequently used in Taiwan, as well as in the traditional and pre-Communist China era. The Pinyin system is used in China and in academic work in post-1949 China.

With respect to the style of writing personal names in the Romanised system, China tends to place the surname before the first name, while Taiwan places the surname last. In order not to confuse my audience with first names and surnames in this thesis, the Chinese system of 'surname before first name' is used whenever personal names are mentioned both in China and in Taiwan. However, where there are differences between Chinese and Taiwanese spellings of personal names, the spelling used reflects the individual's nationality. Taking the author's name for example, in China, it is written as Jiang Shulin, while in Taiwan, it is written as Chiang Shu-lin.

To my parents:
Ding-Hsin Chiang
Chao-Tzu Tseng

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Chapter 1

Introduction

This research was motivated by the observation that existing literature on digital divide policy is derived from Western countries, and embedded within Western rationales, while the developing countries had received relatively little attention. Western discourses have achieved global reach—for example through espousal of the Global Information Infrastructure (1994) and the organisation of the World Summit on the Information Society (2003, 2005). It might be argued that the issues surrounding the digital divide are of global applicability—that Information and Communication Technologies (ICTs) are universal, globally available technologies, and that effectively the same policies will be needed in all nations to promote adoption and access to them and the information they carry. This is however to ignore the crucial role that the specific histories, cultural, political context and institutional structures of nations play (Norris, 2001) in the character of inequalities in access to ICTs; in the ways that these divides may be bridged; in the policies needed to pursue this. These specificities underpin differences between developed and developing countries, and amongst developing countries in the goals, and processes and outcomes of digital divide policy-making and implementation. As a result, the discourse made by technological elites in advanced countries ‘has little meaning in many regions of the globe where even intermediate telecommunications are underdeveloped’ (Loader, 1998: 3). Using specific examples as illustrations, this research focuses on digital divide discourse¹ in two developing countries, China and Taiwan; it investigates how the digital divide has been defined and translated into the national policy and into further policy implementation in individual countries. Moreover, as the term of the digital divide originated from the West, this research seeks to understand how its original definition has been interpreted and/or reshaped by the political, economic and social agendas of these two countries.

The concept of the digital divide in its origin and its popular understanding has been always associated with information and communication technologies (ICTs), in particular the Internet, which became the technology which led to the widespread adoption of ICTs—and thereby paradoxically focused attention to non-adoption. The

¹ In this research, I use a broad definition of ‘discourse’ so as to indicate both texts and practice, thus following Hajer’s approach for analysing environmental issues (1995). By definition then, ‘discourse’ here is useful for framing a policy problem. It refers quite particularly to the analytical term ‘storyline’ as created by Hajer (1995): this ‘is a generative sort of narrative that allows actors to draw upon various discursive categories to give meaning to specific physical or social phenomenon’ (Hajer, 1995: 56).

Internet, by definition, can indicate different dimensions, e.g. the infrastructures, applications, services, etc. The 'Internet' here refers to 'the electronic network of networks that links people and information through computers and other digital devices allowing person-to-person communication and information retrieval' (DiMaggio *et al.*, 2001: 307). It is regarded by both developed and developing countries and international organisations as being crucial for national development, including defense, academia, and commerce (Norris, 2001). Developing countries are aware that this is an unprecedented opportunity for them to catch up with developed countries in this third industrial revolution² (Hu, 2002).

Alongside the desperate effort made by governments across the world to develop the Internet, the widening gap between developed and developing countries and between communities within developing countries, looms large. This is the phenomenon commonly referred to as the digital divide. Although almost every state is trying its best to afford or build the infrastructures needed to increase the penetration rate of the Internet, the digital divide still exists. Some scholars even warn that the divide is not reducing, but deepening (e.g. van Dijk, 2005). This implies that governments first paid attention to building the physical infrastructures, but that they now need to pay attention to other excluding factors, e.g. uneven economic development.

The warning of a deepening divide highlights the need to scrutinise the uptake of the digital divide concept as well as the policy-making processes surrounding it. In the existing literature, most discussion predominately focuses on the 'phenomenon' of the digital divide, and measures to deal with the problem (Gigler, 2004). Little effort has been made in investigating how the discourses pertinent to the digital divide are constructed, and further how these discourses influence the development of policy for reducing the divide. Neither is attention paid to the participants who get involved in the policy-making. The macro/micro context for policymaking is too often neglected. In this research, I will demonstrate that an interpretive perspective can usefully address these problems.

² The Industrial Revolution, which began in the latter half of the eighteenth century in the United Kingdom, witnessed steam engines and other mechanical innovations dramatically increasing industrial output and drastically changing established social systems. The second wave of industrialisation at the beginning of the twentieth century brought with it mass production methods, characteristically embodied in the electrical and automotive industry. Since then, society has witnessed a third industrial revolution, which came to the fore during the 1980s, driven largely by technological breakthroughs taking place within the computer industry. See also Litan & Niskanen (1998).

1.1 A Changing/Ongoing Metaphor: the Digital Divide

When I explain my research to colleagues and to interviewees, I always encounter the question, without any exception, 'what is the digital divide'? At the beginning, I was shocked that a term so common in policy texts and media coverage sounded so unfamiliar to the people I talked to. However, although I have been immersed in this issue for around four years, I cannot give a very definite and quick answer to their query because the term has multiple meanings and it is a moving target (Compaine, 2001).

Therefore, before discussing my research, I will present the complexities and changing use of this term from its emergence to its latest usage in Western countries, particularly in the US. Selecting the US as the case to depict the changing use of this term does not mean that only the US government is concerned about the digital divide. However it was the first country to conduct and publish national reports pertinent to the digital divide. From the first report onwards, we can see the explicitly historical transformation of this term in the policy context, which has had consciousness-raising impacts on international and regional organisations and other countries.

1.1.1 Origin and Changes of the Meanings of the Digital Divide—Five National Surveys in the US

The origin of the term 'digital divide' remains uncertain and ambiguous (Gunkel, 2003: 501). Its original conception can be traced back to the US National Information Infrastructure (NII) in 1993. The first appearance of this term was in 1995 when journalists Jonathan Webber and Amy Harmon of *LA Times* started using it. They used it to describe a gendered phenomenon in a family, where the husband used a computer very frequently to surf online, whilst the wife did not. In a broader sense, in their article, they 'invented the term to describe the social division between those who were very involved in technology and those who are not' (Gunkel, 2003: 501).

We can selectively chart the evolution of this term by looking at the changing conceptualisation of the digital divide in the US before the National Telecommunications and Information Administration (NTIA)³ reports officially

³ According to its official website, the National Telecommunications and Information Administration (NTIA) is the President's principal adviser on telecommunications and information policy issues, and in this role frequently works with other Executive Branch agencies to develop and present the Administration's position on these issues. For more information please refer to <http://www.ntia.doc.gov/>. Accessed on 22/08/2007.

adopted this term (see Figure 1.1). Throughout the conceptualisation of the digital divide in a series of NTIA surveys from 1995 onwards, the definition changed in two respects—the associated technological instruments, and the dimensions of divide. With regard to technological instruments, it originally referred to personal computer ownership, and later came to incorporate the Internet. The detailed transformation of this definition is discussed below.

The five reports conducted in the US have respective characteristics, which are elucidated in the remainder of this sub-section. Although the first published survey in the US in 1995, titled *Falling through the Net: A Survey of the 'Have Nots' in Rural and Urban America*, does not precisely use the term 'digital divide', the implication of a dichotomy—haves and have-nots—appears. The survey aims to unveil the so-called 'information have-nots', a term which means there is a group without access to the information in contrast to the 'information-haves'. After this term is first defined in the 1995 survey, subsequent discussions of the digital divide predominantly centre on this bilateral definition and receive much criticism.

The critics argue that the term—the digital divide—is often used simplistically, indicating a bipolar societal split (Warschauer, 2002; Gunkel, 2003; Cisler, 2003). 'This dichotomous portrayal of "haves" and "have nots" has been reinforced by a host of official statistics and academic studies over the last decade' (Selwyn, 2002: 5). The examples are quite a few; such as those who have access to IT and those who do not (NTIA reports), those who can use technology and those who cannot (The Benton Foundation, 2001), techno-utopians and techno-dystopians (Harmon, 1996; Moore, 1995), and the gap between information haves and have-nots in K-12 education (Poole, 1996). Whatever the definitions of the digital divide, they 'organize things into two, dialectically-opposed types' (Gunkel, 2003: 505). The critics argue that there is no binary division between haves and have-nots, but rather a gradation based on different degrees of access to the ICTs (Warschauer, 2002; Cisler, 2003). The digital divide is not merely a problem of beginning with or without technology, but a problem with existing social differences.

Access to the Internet and the digital divide are 'hierarchical' rather than dichotomous concepts (Selwyn, 2002: 8). Gunkel (2003) argues that the problem with the binary distinction 'is not simply the inability of a linguistic dichotomy to represent a complex state of affairs. The difficulty resides in its structure' (Gunkel, 2003: 507). Selwyn reminds us that this will 'raise concern over the dangers of over-relying on such a basic

conceptualisation of such a complex social issue' (Selwyn, 2002: 6).

Additionally, the report highlights the divide between domestic regions, i.e. rural and urban areas in America, which may have influences on the subsequent national digital divide reports and relevant policy-making of other countries, which also focus on domestic regional divides.

In the 1998 report, titled *Falling through the Net II: New Data on the Digital Divide*, the concerns extend from universal service to information service (the first paragraph of the introduction in the report). This extension implies the technological instrument when considering the gap between haves and have-nots has been expanded from the telephone to other technologies which also function in providing information, because 'Universal Service' was historically invented to apply to the telephone service. It is in 1996 that this concept was extended in the Telecommunication Act to online services including the Internet. Although in this report, the technology of concern explicitly expands to include personal computers, the dichotomous conceptualisation of the divide is still employed.

A breakthrough in the 1999 report, titled *Falling through the Net: Defining the Digital Divide*, is that for the first time the Internet is taken into account in the survey. This report announced that 'ensuring access to the fundamental tool of the digital economy is one of the most significant investments our nation can make'. The fundamental tool includes three types of technology access—telephone, personal computers and the Internet. It also indicates that 'the Internet is a nascent, rapidly diffusing technology that promises to become the economic underpinning for all successful countries in the new global economy' (NTIA, 1999: 27).

The 1999 report is aware of another novel point—the dropouts. Dropouts refer to those who became connected to the Internet but then discontinue their use of it. In this survey, people are asked to state the reasons why they discontinue Internet use. The answers they provide overwhelmingly concern their 'unwillingness' to continue to be connected to the Internet. The high cost of access is cited as the main reason.

In spite of these two novel aspects of the 1999 report, the concerns are again with merely physical connection to the Internet. For example, the last sentence of the first paragraph in the introductory letter of this report is 'access to such tools is an important step to ensure that our economy grows strongly and that in the future no one

is left behind'. There is no improvement in the 2000 report where even though the goal is to promote full participation in the digital economy, the focus is still on physical access.

The 2002 report, titled *A Nation Online*, investigates how Americans are expanding their use of the Internet. Although this latest survey predominantly focuses on Internet access, the definition and dimensions of the digital divide are fluid with different ICTs emphasised in different surveys. Moreover, from the title, we can observe that this report has a positive, optimistic attitude towards ICTs. In contrast to the emphasis on bridging the digital divide in the previous four reports, the latest report displays an optimistic goal of giving all people access to the Internet, 'transforming the digital divide to digital opportunity.'⁴ It is clear that the definitions of the digital divide are by no means exclusive, and that they vary so as to meet the goals of research or political actions.

⁴ This is a prominent slogan proposed in APEC 2001. I will provide a more detailed analysis in Chapter 4 when dealing with the programmes and conferences regarding the digital divide in regional and international organisations.

When	Who	Where	What
1995	Jonathan Webber & Amy Harmon	<u>LA Times</u>	The social division between those who were very involved in technology and those who were not
1995	Moore		To distinguish between advocates and detractors in debates about the value of IT
1996	Jonathan Webber & Amy Harmon	<u>LA Times</u>	Difference in opinion about new technology. The difference of opinion that exists between those who are deeply suspicious of a new generation of engineering solutions to the world's problems, and those who insist that, this time around, the enlightenment promise of better living through rationality and science will be realised.
1996	Howard Wolinsky	<u>Chicago Sun Times</u>	Not referring to the gap between information haves and have-nots, but to a voluntary partition galvanised by strongly-held views about whether today's technology is a force for progress or destruction. Publish 'The Digital Divide', which examined how 'unequal computer access for students is creating tomorrow's haves and have-nots'.
1996	Vice-President Al Gore	<u>A public speech</u>	Name the gap between the information haves and have-nots in K-12 education.
1996	The Clinton-Gore Administration		Employ the trope of the digital divide to justify various educational initiatives and policies.

Figure 1.1 Selected Relevant Accounts of the Digital Divide in the US before the NTLA Reports Were Officially Adopted (Source: Synthesized from Gunkel, 2003: 501-505⁵)

⁵ For further sources please refer to Gunkel (2003).

1.1.2 Two Perspectives on the Digital Divide

During the heated debates on the digital divide within the past decade, we can see two perspectives on the digital divide—‘existing/deepening’ vs. ‘disappearing’ (see Figure 1.2). The ‘existing/deepening divides’ perspective admits the existence of the digital divide. This perspective is enthusiastic for government involvement in bridging the divide, and advocates the development of variables to measure the changing divides within society.

However, this perspective includes slightly divergent opinions on the ‘novelty’ of the digital divide. Some scholars, following Marxist traditions, argue that the digital divide is no different from existing social inequalities. Others argue that the digital divide is a new social inequality, which emerges only in the information society. The split between the two camps originates from a fundamental difference of opinion about the emergence of the information society; namely, whether the so-called information society is a continuum of the industrial society or a break from the industrial society.⁶ However, in spite of their different opinions on the novelty of the digital divide, these two camps agree that the digital divide needs to be bridged.

By contrast, the ‘disappearing-divide’ perspective based on neo-liberalism adopts the position that no government intervention is necessary and supposes that the market will solve the problems. The neo-liberal stance once dominated perceptions of the digital divide, particularly in the US, where the digital divide is taken to be a temporary lag. The former US Federal Communications Commission (FCC) Chairman Powell’s replacement of the term digital divide with that of the ‘Mercedes divide’ (‘some people can afford expensive luxury cars, some cannot, but that is the American way’) is the classical neo-liberal understanding of the digital divide. Simply put, this position does not perceive the digital divide as a pivotal social problem in need of solutions from the government. It is based on the theories of ‘trickle-down effect’, ‘late-comer’ and ‘S-curve’. The trickle-down theory implies that the divide may exist, but will disappear very soon as long as the price of the technology goes down (Loader, 1998; Selwyn, 2002). Late-comer theory has a similar explanation to trickle-down theory, and argues that the early adopters pay a higher price for the innovation, and when the original price goes down, the late-comers will benefit. The ‘S-curve’ concept was developed by Rogers (1995) in his theory of innovation diffusion. He theorises that the innovation diffusion

⁶ Frank Webster (2006) in his book *Theories of the Information Society* has a thorough discussion drawing on contemporary scholars’ opinions about the information society.

will spread through a society and, when charted over time, will be represented by an S-shaped curve, as small numbers of early adopters use the technology first, and are then followed by the majority until the technology is common for the whole society.

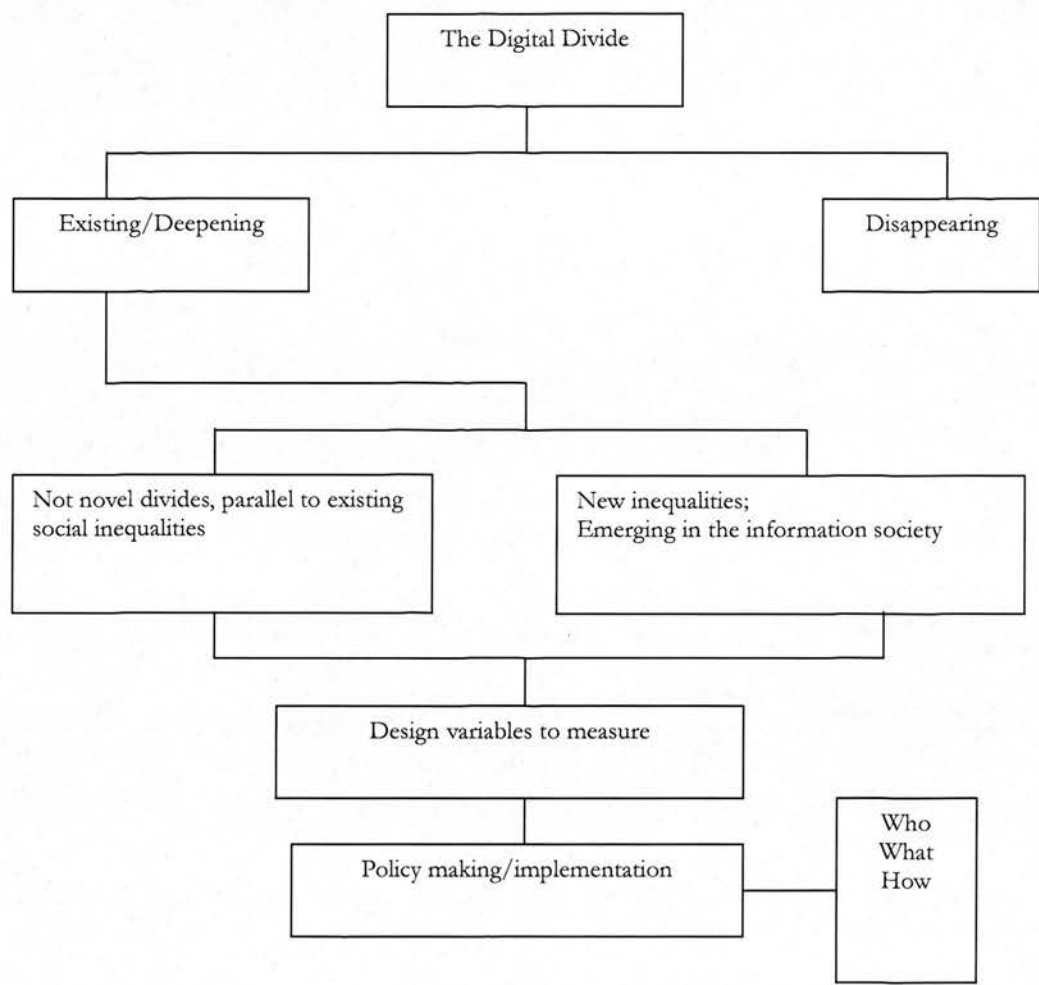


Figure 1.2 Two Perspectives on the Digital Divide

1.2 Rationale—Interpretive Policy Research

This research seeks to combine two fields—Science and Technology Studies (STS) and interpretive policy research. While interpretive policy research provides a comprehensive policy research framework for this project, STS offers insights that are useful for scrutinizing the relationship between technology and society. For example, it reminds the researcher that there is ‘interpretive flexibility’ (Social Construction of Technology, SCOT, from the STS literature, Pinch and Bijker, 1984) in interpreting the relationship between technology and society. Moreover, ‘domestication’ as it has been developed by STS scholars (e.g. Sørensen, 1996, 2000) provides a useful analytical concept for investigating how the idea of ‘the digital divide’ has been selectively employed in my case countries. While this concept has traditionally been applied to the analysis of the adoption of technologies, Sørensen has demonstrated that it can be successfully be applied to the analysis of policy-making (see Aune and Sørensen, 1998; Brosveet and Sørensen, 2000).

The approach to interpretive policy research in this thesis is based on the epistemology of social constructivism. The idea of social constructivism has its origins in the sociology of knowledge (Berger and Luckmann, 1967; Mannheim, 1936), which refers to the ways in which the social realities of the world are shaped and interpreted (Gergen, 1999; Fischer, 2003). Two reasons justify the use of this epistemology within the analytical framework adopted in this thesis. Firstly, it has particular influence on the sociology of technology, which regards the technology as a socially constructed artifact. This influence may help me analyse how my interviewees and documents (together) interpret technology and the digital divide. Secondly, social constructivism plays an important theoretical role in researching social problems, and this is relevant for related policy research (Fischer, 2003). Adopting the perspective from interpretive policy research will benefit the analysis because this approach does not take the definition of the ‘problem’, e.g. the digital divide, for granted. Rather, this approach insists that the definition of the ‘problem’ is incorporated into the analysis.

Interpretive policy research focuses on the discursive dimensions of policy. It considers the key concept of ‘values’ from an interpretive perspective in terms of ‘values, beliefs, and feelings as a set of meanings’ (Yanow, 2000: ix), and it considers ‘human action(s) as expressive (of meaning)’ (ibid). By adopting an interpretive policy perspective, this thesis aims to answer the following questions: How and in what context is the digital divide framed as a problem that needs to be solved? What does digital divide policy mean?

Who is involved in this policy?

The work of Robbin and Courtright (2002) serves as an example of one instance when the adoption of an interpretive policy analytic perspective is used to deconstruct the digital divide in the United States. Drawing on the data collected from published reports, press releases, newspaper interviews and other materials produced by organizations in the U.S. that were involved in the 'digital divide' as a policy issue, they examine U.S. policy stakeholders' competing conceptions of the 'digital divide', including their problem definitions and the policy solutions they envision.

Robbin and Courtright argue that 'digital divide' is a new metaphor for describing phenomena that do not answer precisely to prior experience. They indicate that the term 'digital' normally refers to modern information technologies and to their positive implications for everyday life. In the US context, the term 'divide' implies certain normative assumptions about equality and social inclusion. Reference to a 'divide' is full of urgency in a republic that takes pride in the designation 'one nation, indivisible' (Robbin and Courtright, 2002:5), and serves as a call to action. Characterizing the 'divide' as 'digital' stretches the conceptualization of digital phenomena to embrace social implications, where the technology is not only seen to be related to social inequality, but considered to be a cause of it. In this sense, stakeholder solutions tend to privilege technological solutions in order to remedy the digital divide, e.g. focusing predominantly on physical access to technology.

Robbin and Courtright conclude that the interpretation of the digital divide in the U.S. focuses on technological discussion. Their findings reveal that the digital divide is taken as a technological issue in the then U.S. discussion. They use a story to demonstrate how a technological solution is privileged in order to resolve the digital divide. During the course of their research, one school administrator recalled those low-income students who lack the resources to realize their full potential but who, once they receive major assistance from leading technology corporations, then have the potential to become the future leaders of the US (Robbin and Courtright, 2002: 11). This story creates a 'technological frame' (Robbin and Courtright, 2002: 11) and assumes that the digital divide is predominantly an issue of the technology 'haves' and the technology 'have-nots'; the solution to solving this digital divide is to provide the students with improved technology. Only rarely does a stakeholder suggest that such provision (physical access to technology) may not actually be enough.

Robbin and Courtright argue that the debates over the digital divide can never be isolated from the context, e.g. the political context. They argue that the above story reflects concepts of modern liberal theory. The narrative frames the problem as one of equal opportunity: once the school students are provided with equal technology-enabled opportunities, they will have the chance to become leaders.

Drawing on the interpretive approach and on Robbin and Courtright's work, my analysis is separated into two stages. The first stage analyses the perception and interpretation of the digital divide. I am looking at how the issue of the digital divide is framed, within the contexts in which my case-study countries are situated and in the wider global environment. The second stage demonstrates how the interpretation of the digital divide may lead to actual action, and uses specific examples in order to illustrate the relevant points (see case selection in the later section). In this research, understandings of the digital divide are shown to have impacts on digital-divide policy-making and implementation, including which institutions are involved, what actions are taken, etc.

As different definitions of the problem come into play, different policy frameworks and policies may be revealed and presented. The participants in policy-making may change from one context to the next. This thesis opens by acknowledging this as a concern, and asks how the digital divide policies are interpreted within international and national contexts.

Normal ICTs encompass two characteristics. One focuses on 'technology' and the other on 'information and communication'. Heeks has a similar delineation of ICTs, arguing that they 'undertake both processing and communication of information' (Heeks, 2004: 1, emphasis in original). Focusing discussion of digital divides merely on the technological dimension, what I label as 'technology-driven policy', may risk narrowing the issue in question to a matter of physical access, and lead the policy merely to concentrate on providing technological hardware. However, digital divides do not only have to do with physical access, but also desire, skills, literacy and so forth. Technology-driven policy may tacitly place technical choices at centre-stage. As a result, the digital divide is treated as a technological issue rather than as a communication or (human) rights concern (as might be raised in the field of communication policy). Because of this, policies that are related to solving the digital divide often parallel real technological development. When they intertwine with economic growth and development, they have a tendency to completely ignore alternative dimensions of the digital divide, e.g. the individual rights of all citizens. Such policies may narrow the issue

in question to a matter of mere physical access, and may result only in a determination to provide technological hardware. This situation echoes what Robbin and Courtright (2002) have already argued: that using a 'technological frame' to define the digital divide will inevitably privilege technological solutions.

For developing countries, the tendency to think this way is understandable. Almost all technological innovation and development is placed in the context of national development/national competition. Focusing only on the competition at an international level may distract attention from the domestic distribution of technical facilities and wealth. This may actually widen the gap which already exists, because it ignores the fact that the digital divide is embedded within a wider context in which technology and information are unevenly distributed. The adoption of an interpretive policy research approach provides an opportunity to highlight this problem.

In adopting this interpretive perspective, I do not mean to trivialise the issue of the digital divide. However, the study is developed with the expectation that, by addressing how different definitions are constructed within a fundamentally constructivist dimension, an alternative means of investigating the issue (from the angle of developing countries in particular) can be found. Although there is a rich body of literature on the digital divide, it for the most part 'documents the empirical problems of unequal access' to technology (Gunkel, 2003: 499) and emphasises how to bridge the digital divide in practice, e.g. by solving technical problems. This approach is adopted by international digital divide conferences and reports, as well as by national digital divide reports. This means that it does not address the most fundamental aspect of the digital divide. That is, it lacks any 'critical examination of the digital divide' (Gunkel, 2003: 500) and ignores the fact that the digital divide as a problem is a socially constructed process.

To sum up, the adoption of this approach can open up the process behind policy-making, including the ideologies embedded within it. No-one can live in an isolated and empty context. Therefore, the ideologies behind the policy-making are embedded in a much wider social context; here it is political and economic contexts that are particularly relevant. And for an interpretive policy analyst, as Yanow suggested, the task 'is to map the "architecture" of debate relative to the policy issue under investigation, by identifying the language and its entailments used by different interpretive communities in their framing of the issue' (Yanow, 2000: 12).

1.3 The Units of Analysis

The decision about the units of analysis in this research is made in terms of the settings that are examined and the questions that are addressed. Since I am interested in the digital divide policy process in developing countries, two developing countries with distinct political and economic characteristics—China and Taiwan—are used as the units of a comparative analysis. The detailed reasons for selecting these two countries are elaborated in the following subsection.

The purpose of comparison between China and Taiwan is to display two different cases of digital divide policy in developing countries, with the hope that the analytical results from both countries can contribute to the development of digital divide policy in other developing countries, which may be at earlier or later stages in this process.

1.3.1 Why Developing Countries?

Two developing countries are chosen as my broad research objects on the following basis:

Firstly, most of the existing research on the digital divide focuses on the Western countries/developed countries, but without an in-depth concern for developing countries. Studies coming from the United States attract most attention; however, the Internet conditions outside of the US may be structurally different (van Zoonen *et al.*, 2003).

Secondly, there are crucial policy questions facing developing countries in bridging the digital divide as well as in drafting the policies concerned with this issue. As Kluver and Banerjee (2005) argue, digital access is among the factors that are influential for developing countries to open up democracy via the Internet.⁷ Namely, the digital divide policies adopted have political implications given that the Internet may influence issues such as the speed of democracy.

Thirdly, after the 1997 Asia Economic Crisis,⁸ most Asian/developing countries have

⁷ Kluver and Banerjee (2005) proposed three factors, and the other two factors are political culture and regulation.

⁸ The economic crisis that erupted in Asia in mid-1997 has led to sharp declines in the currencies, stock markets, and other asset prices of many Asian countries. The countries included in this crisis, were Thailand, Hong Kong, Indonesia, South Korea, Malaysia, the Philippines, Singapore, Taiwan and China.

been suffering from difficulties to a greater or lesser extent. Thus, the development of the Internet to a mature level has been viewed as an efficient and important investment, economically, politically and socially, for catching up with developed countries.

1.3.2 Why Compare China and Taiwan?

1.3.2.1 China in Brief

Technological development, in particular the Internet, has given China an opportunity to catch up with industrialised countries, and alleviate domestic economic development. Since 1978 onwards, Deng Xiaoping opened a new era of development in all aspects in China, highlighting the importance of technological development, in particular the contribution of technology to economic growth. The slogan 'the mastery of modern science and technology as the key to modernisation' has been the highest ranked principle in all policy fields.

To achieve economic growth, China has been undergoing a series of significant revolutions in informatisation. In China, 'informatisation' indicates 'process, progress, duration all the way from the industry society to the information society', as well as 'all the means to accelerate the process from the information society'.⁹ Figure 1.3 provides the timetable of informatisation in China. In December 1993, the Chinese government launched a 'Joint Committee for Informatisation of Domestic Economy'.¹⁰ To emphasise the importance of this committee, the Vice-President of the State Council took the chair position. During the course of this conference, 'enforcing informatisation and further boosting industrial development by informatisation' has been assigned as the key issue. The leaders of the Chinese Communist Party (CCP) and the Chinese government proposed the initiatives of informatisation construction, which symbolised a new era of domestic economic informatisation. The far-reaching projects of informatisation, such as 'Golden Card', 'Golden Bridge' and 'Gold Customs'¹¹ were

⁹ Zhou Xiaofang, Director General of Department of IT Application Promotion, State Council Informatisation Office of China, defined how the term 'informatisation' is used in China in a presentation in Shanghai on 18/10/2006. For more information, see <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN025040.pdf>. Accessed on 22/08/2007.

¹⁰ In Chinese title, Guo Min Jing Ji Xin Xi Hua Lian Xi Hui Yi (國民經濟信息化聯席會議).

¹¹ These three informatisation projects were carried out in the early stages of China's development strategy in 1993. 'Golden Card' aimed to develop cash cards and a national credit card system. The aim of 'Golden Bridge' was to develop a national infrastructure for the informatisation of the national economy. 'Golden Customs' was expected to transform the nature of foreign trade administration and promote the development of electronic trading (Dai, 2002).

activated after the conference.

The informatisation process has been underway since the first conference mentioned above. In January 1996, the 'Informatisation Committee of State Council'¹² was launched, which was staffed by twenty-two ministers and led by the vice president of the State Council. It is an important organisation that assured the content and systems of national informatisation in China. Moreover, it proposed the direction and principles of informatisation constructions, as well as building the Ninth Five Year¹³ development plan for national informatisation. In April 1997, another significant conference was held to implement national informatisation.

Meanwhile, the Chinese government underwent reorganisation of information-related official institutions. The Ministry of Information Industry (MII) was established in March 1998 according to the decision on the reshuffling of institutions by the State Council. MII has taken over the responsibilities and tasks under the Informatisation Committee of the State Council as well as having the main responsibility for the telecommunications and electronics industries. To achieve the goal of development of information technology and informatisation economics, under the scheme of MII the Department of Informatisation Promotion was launched. China has thus experienced a series of reorganisations in official institutions in attempt to produce better development in technology, informatisation and the final objective of economic growth to lift its people out of poverty.

¹² In Chinese title, Guo Wu Yuan Xin Xi Hua Gong Zuo Xiao Zu (國務院信息化工作領導小組).

¹³ The Five Year Plan was an attempt by China to boost her industrial development and set her on the path to become a world-class power. The plan was initiated in 1953. At the end of 2006, China was drafting the Eleventh Five Year Plan. For more detailed accounts please refer to Chapter 5.

Time	Event	Detailed Content
1993/12	<i>'The joint conference of National Economy Informatisation under the State Council' was launched.</i>	<ol style="list-style-type: none"> 1. The Vice-Premier took the position of chairman. 2. The directive thought 'enforcing informatisation industry, realising industrial development through informatisation' was assured. 3. The projects of informatisation construction were proposed by the leaders of the ruling party and the state. 4. The significant projects of 'Golden Card', 'Golden Bridge', 'Golden Customs', etc. were activated. 5. The national economy informatisation was opening up.
1996/01	<i>'Informatisation Leading Group under the State Council' was launched.</i>	<ol style="list-style-type: none"> 1. Consisting of 22 ministries and departments; Vice-Premier took the position of chairman of the board. 2. The spirit and system of national informatisation was established. 3. The direction and principles of national informatisation construction was proposed. 4. The planning of 'Nine-five' strategy of national informatisation was made. 5. Local informatisation leading groups were launched afterwards.
1997/04	<i>National Informatisation Work Conference</i> was organized.	<ol style="list-style-type: none"> 1. The tasks of national informatisation have been deployed completely.
1998/03	<i>The Ministry of Information Industry</i> was established.	<ol style="list-style-type: none"> 1. MII was lunched based on the reform programme approved by the Ninth National Committee of the National People's Congress (NPC). 2. The responsibility had been shifted from the <i>Informatisation Leading Group under the State Council</i> to MII. 3. Postal Department and Electronic Industry Department are two main units. 4. In charge of national electronic product industry and telecommunication and software industry, promoting relevant sub-organisations for national economy and social service informatisation under State Council 5. The Department of Informatisation Promotion was established.
1998/03	<i>The State Science and Technology Commission (SSTC)</i> changed its name into the <i>Ministry of Science and Technology (MOST)</i> .	
1999/12	<i>The National Informatisation Leading Group</i> was established; meanwhile, <i>The National Informatisation Office</i> was closed. <i>The National Informatisation Promotion Office</i> was established.	<ol style="list-style-type: none"> 1. Vice-Premier took the position of chairman. 2. Aiming to distinguish the developing informatisation industry and promoting informatisation, for blocking the interest exchange inside the informatisation industry.
2001/08	Upgrading the National Informatisation Leading Group.	

Figure 1.3 Timetable of Informatisation in China (Source: Compiled by the Author)

1.3.2.2 Taiwan in Brief

Taiwan proposed a slogan called 'Transfer digital divide to digital opportunities' during the conference period in Asia-Pacific Economic Cooperation (APEC) in 2000. The Minister of Economic Affairs (MOEA), Lin Hsin-i and the Chairperson of the Council for Economic Planning and Development (CEPD), Chen Po-chih suggested bringing the issue of bridging the digital divide into the long-term agendas of APEC, and set two stages of enforcement. The first one of these was held by the Taiwanese government in July of 2001, and the second one focused on providing all members of APEC with assistance in reducing the digital divide; all provisions would be made to meet the demands of individual countries. Both schemas were handled by the Taiwanese government. Meanwhile, CEPD were conducting research on digital divides between rural and urban areas, and also between different industries within individual member countries (*United Daily News*, 05/12/2001). Figure 1.4 provides the timetable of informatisation in Taiwan.

In 2002, the Executive Yuan¹⁴ of Taiwan proposed a policy, which aimed at constructing Taiwan as 'e-Taiwan', designed to make Taiwan a number one country in the Asian area (*United Daily News*, 21/03/2002). A government officer of the committee, who is responsible for the construction of e-Taiwan, argued that the reason why different minorities exist within a society is in fact due to the uneven distribution of resources, in particular with the advanced development of ICTs. He also argued that current problems would be exacerbated if no actions were taken to solve the problem. Hence, what should be done to avoid the problem is narrowing the divide, making ICTs evenly distributed throughout the whole society (*United Daily News*, 13/03/2002).

The National Information and Communication Initiative (NICI) launched a committee on June 27th 2003 to bridge the digital divide in Taiwan, and was entitled 'The Instruction Committee of Bridging the Digital Divide'. It is the first well-organised committee to consider the issue of the digital divide. It consists of all relevant governmental institutions, with the aim of solving the increasingly serious digital inequality within the country. The establishment of this committee fully expressed the government's determination to bridge the digital divide inside Taiwan.

¹⁴ Executive Yuan is the highest administrative level of the State. The Executive Yuan has a president (often referred to as the premier), a vice president (vice premier), a number of ministers, heads of commissions, and ministers without portfolio.

Subsequently, in 2004, the Executive Yuan of Taiwan promoted a plan titled 'An Action Plan of Reducing the Digital Divide', the budget of which package is US \$ 2.1 billion, spread over four years, with the purpose of bridging the digital divide between different races and areas within Taiwan. The programme includes providing residents in rural areas with used computers and other equipments. Additionally, the Taiwanese government also announces that Taiwan will assist neighbouring countries to tackle this issue of the digital divide (*United Daily News*, 29/07/2004).

Time	Event	Detailed Content
2000	Proposed a slogan 'Transfer digital divide to digital opportunities' during the conference period in APEC in 2000	<p>The minister of Ministry of Economic Affairs, Lin Hsin-i and the Chairperson of the Council for Economic Planning and Development, Chen Po-chin suggested bringing the issue of bridging digital divide into the long-term agendas of APEC, and set up two-staged enforcement.</p> <ol style="list-style-type: none"> 1. Stage one: held by Taiwanese government in July of 2001. 2. Stage two: providing all members of APEC with assistance in reducing the digital divide, and all provisions will be made to meet the demands of individual countries.
2002	<i>e-Taiwan</i> programme proposed by the Executive Yuan of Taiwan.	Aims to make Taiwan a number one country in the Asia Area.
2003	'The Instruction Committee of Bridging the Digital Divide' was founded by National Information and Communication Initiative Committee (NICI)	The first official institute regarding reducing the digital divide
2004	'An Action Plan of Reducing the Digital Divide'	<ol style="list-style-type: none"> 1. The budget of the whole package is US \$2.1 billion to be spread over the coming four years. 2. Aims to reduce digital gaps among races and geographical areas with Taiwan.

Figure 1.4 Timetable of Informatisation in Taiwan (Source: Compiled by the Author)

1.3.2.3 Similarities and Dissimilarities between China and Taiwan

Historically and Culturally

In general, China and Taiwan shared the same history and culture until the year 1949 when civil war took place. After losing the war, the National Party (Kuomintang, KMT) retreated to Taiwan and ruled Taiwan for more than fifty years until it regained power in the 2008 presidential election. The population of Taiwan is largely composed of Chinese emigrants from the southeastern provinces, e.g. Fujian and Guangdong. Most people in Taiwan practice a mixture of Confucianism, Taoism, and Buddhism. The Chinese practiced similar religions before the Chinese Communist Party (CCP) came to rule China in 1949 (Cheung and Chow, 1999: 371).

After 1949, the social and cultural aspects of Taiwan have been influenced by Japan and by the US: Japan had colonized Taiwan for half a century and the US had supported Taiwan financially throughout the 1950s and 60s. While in China, the Cultural Revolution of the late 1960s altered longstanding systems of Chinese values. Chinese people were not given religious rights until 1978. The culture of China was pushing toward Marxism-Leninism and Maoist Communism and the CCP was eliminating organized religion and Confucian values from the late 1960s to 1978 (Cheung and Chow, 1999: 371). These histories may have influenced later technological development in both countries. More details on these histories/national contexts are provided in Chapters 5 and 7 respectively.

Politically

The spread of the Internet has been driven by neither purely technological nor purely economic factors. Political factors, especially the type of domestic institutions, have exerted a powerful influence. Democratic governments facilitate the spread of the Internet relative to autocratic ones, even when controlling for economic, technological, sociological, and other political factors (Milner, 2006).

The attitude of the Chinese government on opening up the Internet is paradoxical. On the one hand, the Chinese government is eager to develop the Internet so as to grasp the chance for the third industrialisation and not lag behind the advanced countries. However, on the other hand, it hopes to keep its authority, and not find itself overthrown by the greatly increased access to information enabled by the Internet.

Therefore, the regulation of Internet use through political means is often enforced. For example, in 1995, the Chinese government blocked the search engine Alta Vista for a few days and, as of 2005, China requires bloggers and owners of personal Web sites to register with the government or be forced offline (*New York Times*, 08/06/2005).

Economically

Within the democratic polity, the economic development of Taiwan follows the capitalist market rationale, while the Chinese government adopts a socialist market economy within an authoritarian polity. However, the relationship between technological development and economic development in these two countries has much in common. Firstly, in both polities, science and technology are seen to be driving national development - especially economic development. Secondly, political influence on technological development in both cases is obvious. These observations will be shown in Chapters 5 and 7, and can be further evidenced when comparing the similarities between *Cun Cun Tong* (providing every village with a telephone and internet connection) policy in China and *Digital Opportunity Centre* (DOC) programming in Taiwan.

These two countries provide good case studies for comparing different political as well as economic systems—democratic vs. communist, free market economy vs. socialist market economy.

1.3.3 Which Digital Divide Policies in China and Taiwan Are Examined?

This research starts with a general analysis of digital divide discourses in China and Taiwan, and ends with a comparison between specific case studies from each country so as to demonstrate the impact of policy framing on policy-making and implementation. In line with the my decision to make the main unit of analysis a comparison between these two countries, the research design is determined to investigate a digital divide policy at the state-level. In this research, a state-level digital divide policy means the policy which is made and implemented/regulated by the central government.

This decision to investigate state-level digital divide policies stems from the literature reviewed, as well as the data available. The large scale of state-level digital divide policies means that they are automatically significant for policy-makers. They are also large enough and well known/documented enough for the researcher to be able to follow discursive process and policy implementation. Additionally, the literature reviewed in

this thesis shows that most programmes and initiatives drafted in advanced countries and international organizations emphasise national competition and economic growth. In some senses, it is typical to investigate a digital divide policy at the state-level. However, the research design of comparing specific policy implementations in each nation necessitated the selection of particular policy domains. More discussion on the process of selecting policy domains is provided in Chapter 3, section 3.5.1.2.

The reasons provided above justify the selection of state-level digital divide policies for comparison in this research. The decision to select only two cases for detailed analysis reflected a pragmatic trade-off between breadth and depth of analysis (and as we shall see in the methodology discussion in chapter 3, detailed qualitative analysis posed particular challenges when investigating the Chinese situation).

This research sought to identify and analyze the area of policy implementation that could best reflect the current development of digital divide policy-making in specific countries. After reviewing the various possibilities, I chose the *Cun Cun Tong* policy in China and the *Digital Opportunity Centre* (DOC) programme in Taiwan for specific case study in this research.

The *Cun Cun Tong* policy is useful for the following reasons. First of all, it is a state-level digital divide policy which fits the criteria mentioned above. Secondly, this policy is currently the most significant national policy in bridging the digital divide; it is recurrently mentioned by national leaders in different national speeches and is one of the main goals of the Tenth and Eleventh Five-Year Plans. Thirdly, this policy serves as a good example of the embodiment of national development discourse pertinent to bridging the digital divide. Fourthly, this policy has been carried out across the borderline of China's transition from a socialist economy to a more market-oriented economy; this transition may to a large extent influence the profit performance of the state-owned private operators¹⁵ in charge of this policy. That is to say, this policy represents a paradox worthy of attention: the Chinese government is on the one hand creating a free telecom market via liberalisation (see Chapter 5), while on the other hand it is intervening in the free market via the *fen pian bao gan* (分片包幹) mechanism in order to achieve the policy goal of universal service. *Fen* means separating, *pian* means sections, *bao* means obligation, and *gan* means taking actions. Therefore, *fen pian bao gan* means to separate the task into several geographical sections, with each section

¹⁵ Regarding the definition of state-owned private operators, please refer to Chapter 5.

delegating an obligator to operate. Facing this paradox, the Chinese government still stands in-between two styles of government—socialist and capitalist—when it comes to overcoming barriers to ‘development’, i.e. the digital divide.

Similar criteria have been used to select a digital divide policy for examination in Taiwan. First of all, the Taiwanese government has initiated a nation-level policy to bridge the digital divide in 2003: ‘*e-Taiwan*’. Since I chose a state-level digital divide policy bridging the digital divide between regions in China, I also chose a state-level digital divide policy from the ‘*e-Taiwan*’ programme in Taiwan, thus allowing me to conduct a comparative study. Secondly, the ‘Digital Opportunity Centre’ programme comes from the slogan of ‘transfer the digital divide to digital opportunity’ as was proposed by the Taiwanese officers during the conference period in APEC in 2000. This slogan and the consequent DOC programme gained a great deal of attention in the media report. Thirdly, in the course of data collection, interviewees debated the interpretation of the term ‘digital divide’ when mentioning it in the DOC programme. For this reason alone, the DOC programme provides a sufficient case study for investigation.

Every choice inevitably entails opportunity costs. My choice for this research undoubtedly sacrifices other interesting digital divide policies. This is particularly clear in the case of China where other policies include those addressing the regulation of internet cafés, IT skills training in schools, participation in a UNDP programme on rural technology centres, and bridging regional digital divide projects initiated by city administrations. However, the regulators of internet cafés are police departments (公安, *gong an*) in the local governments – not in the central government. The UNDP programme on rural technology centres in China is still in the trial stage (試點, *shi dian*) and is neither well developed nor completely implemented. The city-level digital divide policy does not meet the criteria this research sets up in the investigation of nation-level digital divide policy. Thus, these policies are not appropriate case studies for this research.

1.4 Research Questions

The goal of this thesis is to answer the core question: how has the digital divide been framed and defined in its original social and economic context in the industrialised world, especially in the US, in Europe, and in international organisations? How have the broader social and economic contexts in a specific country, in this research, China and Taiwan, shaped digital divide policy? The sub-questions include: How has the meaning

of the digital divide been framed within China's and Taiwan's contexts and how is the policy formulated? How have these been translated to implementation? Who are the actors? What are the similarities and dissimilarities of digital divide policy making in my case countries, and what specific examples apply?

● **Policy Definitions**--*How is the digital divide framed as a problem that needs to be solved within the international and national context?*

This main question deals with the interpretation of the digital divide internationally and nationally. It is divided into a set of sub-questions (as outlined below) and uses specific policies to illustrate or set up a specific time frame:

a. *How is the digital divide framed internationally during the time period from the early 1990s to 2005?*

Policy-making is conditioned by the broader process of framing and defining the problem within the context. Therefore, the first question raised in this research is how the issue of the digital divide emerged internationally. The time period this chapter investigates stretches from the early 1990s when the US launched National Infrastructure Initiative, to 2005 and the second phase of the World Summit of Information Society. I do not attempt to outline all the existing organisations involved in information-related and digital divide issues during this time span. Rather, in order to meet the interests of this doctoral study in a discursive framework, the organisations discussed in this research are those that explicitly mention the definition of the term 'digital divide' in their official documents as well as those suggested by my interviewees. Some other international organisations or sub-institutions, such as the United Nations Development Programme and the World Bank, which serve as the main funding bodies for reducing the digital divide, are not selected for analysis, because they devote little space in their documents to discussing the definition of the digital divide.

b. *How is the digital divide framed at a national level?*

Apart from the international context, national contexts may have impacts on digital divide policy-making. Therefore, the second question is how the digital divide is framed at a national level within domestic contexts.

Since social scientific knowledge plays a significant role in framing policy discussion,

social scientific knowledge can help structure the problem and discourse about the problem, as well as clarify the problem and the available solutions. In order to unveil the knowledge that is employed in the policy process, the question raised here is how the digital divide is perceived as a problem that requires attention.

- **Actors and Policy Outcomes--** *Which ministries/institutes participate in policy-making for Cun Cun Tong in China and for the Digital Opportunity Centre/APEC Digital Opportunity Centre in Taiwan?*

The framings of the digital divide may influence the selection of ministries/institutes involved in digital divide policy-making. This research will investigate ministries/institutes involved in policy-making, and divide them into three groups as policy-makers, policy implementers, and researchers.

- **Comparison--** *Where are the similarities/divergences between digital divide policy-making in China and in Taiwan? How do they relate to specific international/ national contexts?*

Interpretive policy analysts are to a large extent interested in the disputed dimensions of policy-making processes and in differences between nations. For example, one of the central questions for interpretive policy analysts is 'how is the policy issue being conceptualized or "framed" by the parties to the debate?' (Fischer, 2003: 143). Less literature exists on similarities in policy between nations and the harmonisation of policy. However, policy convergence is a prospective topic while researching digital divide policy in developing countries. The questions turn out to be: why and how is policy convergence achieved internationally?' In answering these questions, the international context will be considered simultaneously.

Apart from the similarities, there may be also divergence between national policies, since there exist different national contexts within each country. Therefore, in answering this question, the national context will be taken into account. I will draw upon the differences within my case study countries to provide the answer to this question.

1.5 Conclusion

Most discussion on the digital divide and relevant policy has taken place in relation to the developed economies. This thesis will overcome the lack of systematic knowledge of these issues in developing economies by examining the cases of China and Taiwan. A

comparison between these two settings will throw important light on the influence of the economic and political context on the emerging Information Societies.

With the advancement of Internet usage, concerns have been voiced in many fields—governments, academic scholars, and industries. Among these concerns, the issue of the digital divide is attracting more and more attention. In the developed world, for example, the European Union and North America, surveys and programmes pertinent to the issue of bridging digital divides bloom like bamboo shoots after a spring shower.¹⁶ For the developing countries, from the mid-1990s onwards, the issue of bridging digital divides occupies a significant position in drafting national development programmes.¹⁷ The programmes related to bridging digital divides to a very large extent are drafted in terms of national development and national competition. Furthermore, almost all of these programmes are designed in the context of technological innovation and implementation, which are always combined with economic growth. There is a conspicuous absence of alternative considerations, e.g. communication rights.

However, while more attention has been paid to the issue of the digital divide, less analysis has been directed to the programmes or policies that address it due to unclear delineation of policy fields. Most digital divide policies are taken-for-granted and classified either into the area of technology policies or subordinate to the policies aimed to upgrade economic growth/national development, which will be evidenced in my case studies.

Nevertheless, some researchers are now transferring their attention to a micro level on the rhetorical forms of digital divide policies, albeit in an unsystematic fashion. This thesis attempts to combine these two levels, seeking to combine macro and micro levels and also the meso level of the policy institutions. The scope of the thesis therefore does not only encompass an analysis of the macro structure of political and economic backgrounds, but also the micro discourses and participant institutions' dynamics within policy-making.

¹⁶ USA five NITA surveys—Falling through the net: a survey of the 'have nots' in rural and urban America (1995); Falling through the net II: new data on the digital divide (1998); Falling through the net: defining the digital divide (1999); Falling through the net: toward digital inclusion (2000); A nation online: how Americans are expanding their use of the Internet (2002).

¹⁷ For example, the Taiwanese government proposed a six year national development programme, which definitely drafted a sub-programme to promote the penetration rate of the Internet usage. The Chinese government announced the importance of bridging digital divides in public at both international and national occasions, though the issue is still at an early stage in China.

1.6 Thesis Structure

Following this introductory chapter, Chapter 2 will present the synthesised theoretical approaches of Science and Technology Studies (STS) and interpretive policy research, the second of which is composed of a systematic/critical analysis and synthesis from the point of view of two main disciplines—policy research and discourse analysis. The mapping of this research is proposed at the end of this chapter (see Figure 1.5).

Chapter 3 presents the methodology adopted in this thesis. This research adopts a strategy of triangulation. It combines various modes and methods of enquiry—discourse analysis of policy documents with interviewing policy-makers. Interviews are used to obtain first hand materials which throw light on the orientation and context of the various actors who participate in policy-making and their concerns/discourses during policy-making. Finally, there is an analysis of policy outcomes. This research also contributes to opening the black box of policy-making, particularly in China, a context which presents particular challenges for the researcher.

Chapter 4 synthesises relevant activities, programmes, conferences, etc. of regional and international organisations to establish the discursive frameworks for the thesis. The established discursive frameworks serve as the points of reference when I analyse the digital divide discourses in China and in Taiwan. Therefore, the changing definition and discursive frames of the digital divide in these documents will be analysed. The international organisations and relevant documents are of great importance because they play a role as the context for my two case countries. However, these frameworks do not suffice to encompass the varieties of frameworks of digital divide discourses in China and Taiwan. To bridge this gap, the case-study chapters 5-8 will display and propose complementary interpretations of the digital divide in China and in Taiwan.

Chapters 5 to 8 outline the empirical studies and analysis in China and Taiwan in terms of the questions proposed in Chapter 1. Chapter 5 sketches the map of the historical context of China, which is embedded within the wider international/global context and serves as the background understanding of the digital divide policy-making in China. Following Chapter 5, Chapter 6 presents digital divide policy-making and implementation in China, in response to the research questions raised in Chapter 1. Chapter 7 and 8 present Taiwan's case and follow a similar structure to Chapter 5 and 6.

Chapter 9 serves as a condensed comparison of the case studies in China and Taiwan. Chapter 10 concludes this research and proposes potential contributions to policy research theory as well as further digital divide policy-making in developing countries. Reflections on the methodology will also be presented here.

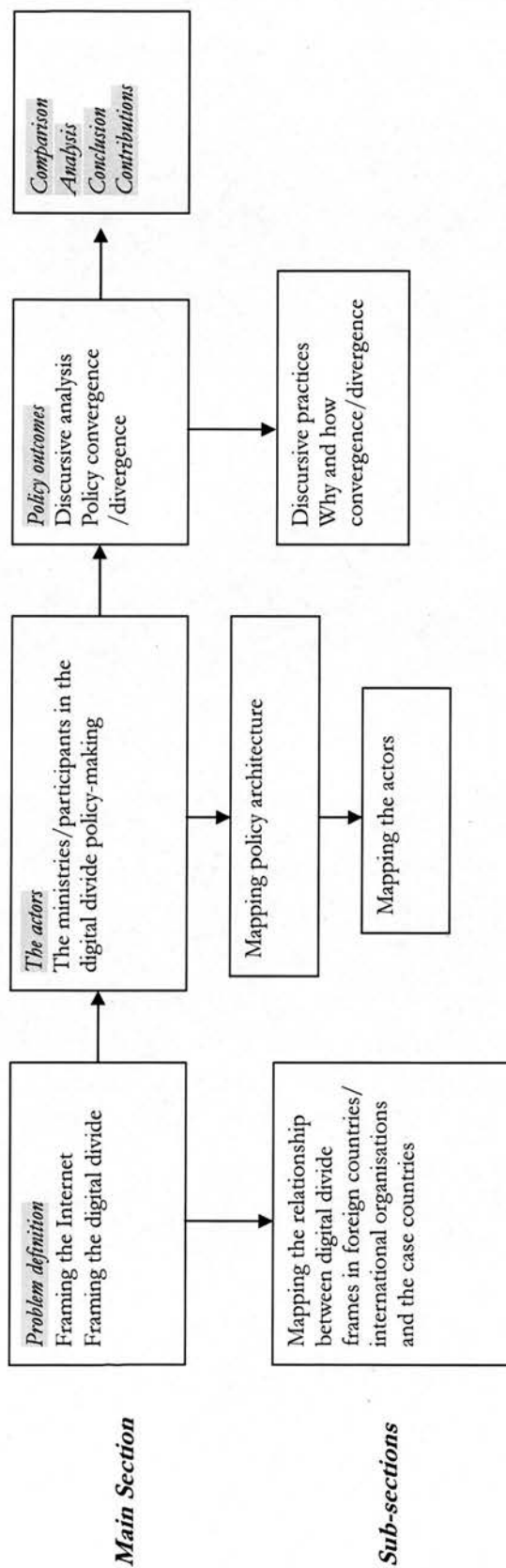


Figure 1.5 Mapping of the Doctoral Research

Chapter 2

Analytical Framework

This interdisciplinary research straddles two academic fields, Science and Technology (STS) and policy making, and it investigates the relationship between technology and society. In order to complete this research, Science and Technology Studies (STS) and policy research are combined so as to provide an analytical framework for the project. While literature from (STS) provides insight into the relationship between technology and society, interpretive policy research offers an analytical approach for analysing policy-making.

In this chapter, I begin by presenting a selective review of important concepts, which are generated from Science and Technology Studies (STS) and Policy Research to create an interdisciplinary literature review, and conclude with my own analytical framework for this thesis. The arrangement of this chapter is as follows. First of all, I pinpoint a need to borrow certain insights from STS so as to assist in Policy Research (section 2.1). In section 2.2, I summarise an STS discussion of the relationship between technology and society, in particular the concept of 'interpretive flexibility' as taken from the Social Construction of Technology (SCOT). Furthermore, I present three different discursive framings of the relationship between the Internet and society in order to apply the concept of interpretive flexibility. This discussion provides insights for the empirical analysis of storylines in this research.

In section 2.3, I start to show the linkage between STS and Interpretive Policy Research by introducing 'context'. I argue that the policy is situated within specific contexts (problem definition, policy making and implementation), both international and national. In this section, I critically review the literature pertinent to the concept of 'context' from the theoretical fields of policy research and STS. I discuss the concept 'contextuality' as developed by the policy specialist Harold Lasswell in the 1950s. Afterwards, I present the work from STS scholars to reveal why a technological issue becomes a policy issue, and I consider how STS scholars appropriate and operationalise the concept 'context' in their research. Jasanoff's term 'co-operation' (2005) will serve as an example that uses 'culture', in particular the political culture, to operationalise the context within which technology policy is made.

In section 2.4, I discuss and develop the concept of domestication, which is highly

related to 'context' as mentioned in section 2.3; this proves a useful concept when investigating how the 'digital divide' has been appropriated by policy-makers in my case countries. I first introduce this concept from Silverstone's work (1991) on technology adoption in the household. I then discuss how Sørensen (1996) and Brosveet and Sørensen (2000) point out the symbolic dimensions of this concept. Furthermore, I draw on one working paper (Graham *et al.*, 2008) from the PRECEPT project¹⁸ in order to show that this concept has been developed so as to analyse how an idea is selectively taken up and may be transformed as it moves between/among actors and contexts. This also shows that the concept of domestication is no longer confined to analyzing technological adoption in contrast to its original use in household studies. At the end of this sub-section, I explain how the concept of domestication is useful for my analysis.

In section 2.5, I draw upon the literature from interpretive policy research and discuss the role of discourse in interpretive policy research, arguing that public policy could be taken as discourses by drawing on works from Gusfield (1984), Hajer (1995), and Gottweis (1998). I explain why the concept of 'storylines' is a middle-range idea (see page 52 for a more precise explanation) for my analysis, which connects the theoretical and empirical aspects of my research. This middle-range concept in Hajer's work is a conceptual innovation, which is inspired by Foucault's theory of discourse. Hajer sought to bridge the gap between Foucault's abstract work and the study of concrete political events. He states that through the middle-range concepts, 'the interaction between discourses can be related to the role of individual strategic action in a non-reductionist way' (Hajer, 1995: 51-52). I also discuss how storylines are activated in terms of framings alongside the theories of social problems, policy learning, policy research, and the Information Society. I use this literature to describe how an interpretation of the issue at stake may influence a government's decision to recruit certain institutions to participate in policy-making, policy implementation, and policy outcomes. Following this discussion, I present the analytical framework for my research. This combined analytical framework will guide me in the design of my research methodology in Chapter 3, e.g. the identification of research objects—what documents to search, what institutes/individuals to interview, and so forth. It will also frame my analysis in later chapters.

¹⁸ This project provides abundant research findings for the idea of Business Process Re-engineering (BPR) uptake study. The data for this project were collected from academic and industrial press in Denmark, Germany, Norway, Slovenia, Spain, Switzerland, and the UK, including content analysis of the BPR literature in English, French and Spanish language. This working paper summarises the findings of the PRECEPT project in relation to the different national and professional uptake and appropriation of a claimed 'global' prescription for business and technology best practice of BPR.

2.1 The Need to Borrow Insights from STS to Assist in Policy Research

This section explains why there is a need to include insights from STS in policy research. The reason comes from the complex problem that ICTs present to policy-makers, e.g. uncertainty due to its novelty and the unknown features of a fast-developing technology. On the one hand, policymakers are fascinated with the impacts new technology may have and welcome it. On the other hand, possessing insufficient knowledge about the new technology, policymakers are anxious about the possible negative effects it may bring.

STS scholars Spinardi and Williams (2005) observe this ambivalence and find a recurrent fear expressed across many science and technology policy statements about the risks of nations and regions getting left behind in the global technology race. They argue that this recurrent fear stems from a dilemma that policymakers recognise that science and technology are important for social and economic development, but they do not have enough capability to completely understand the speedy advancement of, or predict the potential outcomes from the development of science and technology (Spinardi and Williams, 2005: 45).

Spinardi and Williams propose the term 'discontinuity' to explain the phenomenon of mismatch between new science and technology and an old policy framework. They use this term to flag the policy challenge facing policy-makers in the science and technology policy area, which cannot be just 'new wine' (new science and technology) in an 'old bottle' (old policy framework), even if this framework was successfully applied to previous innovations.

With regard to 'discontinuity', Spinardi and Williams mention two types of science and technology—normal and radical. Normal science and technology means 'where changes involves incremental improvement based on established "paradigms", and are therefore reasonably predictable and relatively easy to manage' (Spinardi and Williams, 2005: 47); whilst radical science and technology indicates changes which 'do not build incrementally on existing paradigms and are thus difficult to predict and to manage' (Spinardi and Williams, 2005: 47).

In light of the anxiety of policymakers, and the need to ameliorate this anxiety, there is a need to incorporate theoretical and analytical concepts from STS into policy research to

underpin a better understanding of the issues at stake for policy-making. In this case the digital divide policy deals with both technology and policy.

The selective literature reviewed from STS for this thesis focuses on the debate about the relationship between technology and society, ranging from the simplified notion of technological determinism to social construction of technology and social shaping of technology. This review not only provides a comprehensive background to the theoretical discussion on technology and society, but underpins the analysis in later chapters of this thesis that describe policy-makers' perceptions of the social implications of the Internet. Furthermore, it equips me with insights with which to criticise the discursive practices which are employed during the course of policy making and implementation in my case countries.

2.2 Insights from STS Literature: Technology and Society

This thesis is concerned about how ICTs, in particular the Internet, and a tightly related concept 'the digital divide' to ICTs, are interpreted. Literature from STS provides the insights, e.g. different interpretations of the relationship between technology and society, for conducting analysis of discourses on the Internet and the digital divide.

This section provides in general a theoretical background of the understanding of technology. In the first sub-section, I summarise the understanding of technology from the theoretical perspective found within the STS literature. The second sub-section is devoted to the three divergent perceptions of the Internet, which serves as an underpinning for the analysis of empirical data pertinent to the interpretation of the digital divide in Chapter 6 and in Chapter 8 respectively.

2.2.1 Approaches to the Understanding of the Relationship between Technology and Society

2.2.1.1 Technological Determinism and its Critiques

A generalised definition of the term 'technological determinism' encompasses two main ideas. 'First, there is the notion that technological change follows a logic of its own which, at least to some extent, is independent of human will. Secondly, there is the belief that changing technology brings with it social changes' (MacKenzie, 1999: 39). Discussions about the advent of 'the information society' or 'the information

technology revolution' often 'attributes some such casual role to technological change' (MacKenzie, 1999: 39). As MacKenzie observes, the reason that technological determinism (here he is drawing on the second notion of technological determinism) remains 'is partly because most people experience technological change in their everyday lives as an external process, in which they have no involvement and over which they have no control' (MacKenzie, 1999: 39).

Similar to the generalised definition mentioned above, Wyatt *et al.* (2000) propose three aspects of the relationship between technology and society, in which they also address the idea of 'technological determinism'. They furthermore apply this to the information society and the digital divide. The three types of relationship between technology and society that he outlines are as follows (Wyatt *et al.*, 2000: 8-9):

- a. technological determinism: 'in which technologies emerge as if from nowhere and then proceed to transform the society into which they are diffused'
- b. technological as neutral: 'also has the technology emerging from nowhere, but, in this perspective, the implication is that people choose how they want to use it'
- c. constructivism: 'emphasises the origins and development of technology, demonstrating how people are involved in the creation of technological networks, not only in how they are subsequently used'

The criticism of Wyatt *et al.* (2000) parallels MacKenzie's summary. He mentions 'the first part of technological determinism, that technologies simply follow an internal, technical logic free of social forces' (Wyatt *et al.*, 2000: 10). Moreover, the technological determinism approach is 'usually associated with the notion that technological progress represents social progress' (Wyatt *et al.*, 2000: 9), and 'the problem with technological determinism is that it leaves no space for human choice or intervention and, moreover, absolves people from responsibility for the technologies they make and use' (Wyatt *et al.*, 2000: 9-10).

2.2.1.2 Social Construction of Technology (SCOT)

'Interpretive flexibility' is a key concept of the SCOT approach which is employed to rebut the 'technological determinism' discussed above. 'Interpretive flexibility' stems from the Empirical Programme of Relativism (EPOR), which comes from the Sociology of Scientific Knowledge (SSK) and 'has produced several studies demonstrating the social construction of scientific knowledge in "hard" sciences' (Pinch

and Bijker, 1984: 409). This term means that there is flexibility in how technology is designed and developed (Pinch and Bijker, 1984; Williams, 2002) and how people think and interpret technology (Kling, 1991a; Pinch and Bijker, 1984).

Regarding how people think about and interpret technology, Woolgar and Grint (Woolgar, 1991; Grint and Woolgar, 1997) have further developed this argument and use the metaphor of a 'technology text' to show that, like texts, technologies can be flexibly interpreted (Sismondo, 2003: 82). A series of debates about technological determinism and the effects of technology change, i.e. the guns and roses debate between Kling and Woolgar, serves as a classical example of interpretive flexibility (see Kling, 1991a; Woolgar and Grint, 1991; Kling, 1991b; Woolgar, 1991; Kling, 1992a; Grint and Woolgar, 1992; Kling, 1992b). In response to Kling's question (1992a): 'What's so social about being shot?' Grint and Woolgar argue that 'a gun being shot is not nearly as simple a thing as it might seem' (Sismondo, 2003: 82). They continue that 'the act of shooting a gun is intensely meaningful' (Sismondo, 2003: 82) and 'even injuries by gunshot can take different meanings' (Sismondo, 2003: 82). Furthermore, even death has cross-cultural differences (Sismondo, 2003: 82-83). Therefore, 'no matter how unmalleable a technology might look, there are always situations, some of them highly theoretical, in which the technology can take on unusual uses or interpretations' (Sismondo, 2003: 83). This provides inspiration for my research to adopt a discursive approach within an interpretive policy research that will be introduced in section 2.5.

Wyatt *et al.* (2000) also elucidate the concept of social construction of technology. They state that 'the essence of the constructivist argument is that technologies are objects made by people....Whereas technological determinism presents social change as being the result of technological change, social constructivism explains technologies as being actively shaped by different social groups. Moreover, social constructivism sometimes regards the distinction between society and technology as an arbitrary one, if sometimes an analytically and practically useful distinction' (Wyatt *et al.*, 2000: 10-11).

According to Wyatt *et al.* (2000), there are three ways of saying that technologies are socially constructed. First of all, 'technologies are the material embodiment of the values and interests of particular social groups or classes'; secondly, 'cultural meanings of technologies are elements in languages and in symbolic universes'; and thirdly, 'the workings of technologies are the outcome of negotiation between individuals, groups and institutions' (Wyatt *et al.*, 2000: 10).

The first proposition is sometimes referred to as the 'social shaping of technology' approach (Wyatt *et al.*, 2000: 10). The second proposition 'is informed by Pierre Bourdieu that the social and cultural meanings given to technical artefacts through the processes of consumption or use are emphasised' (Wyatt *et al.*, 2000: 11). For example, 'at a national level, weapons systems are not merely collections of warheads and missile launchers; they provide a country with a sense of prestige and give signals to other nations about intentions and capabilities. Here, technologies are not primarily material objects but constitute an arena for contesting meaning' (Wyatt *et al.*, 2000: 11).

They continue that 'the third type of constructivism somewhat resembles the first, although the construction of meanings predominant in the second also has an important role to play. It differs from the first in that the contingent nature of technological change is stressed. The notion in the social shaping approach that technologies physically embody political or other values can be as reductionist as technological determinism....The third form of constructivism differs from the second in that the process of stabilising meaning, itself always dynamic and contingent, is central to the process of creating the artefact and does not only occur after the artefact enters a wider world of consumption and use. This notion of interpretative flexibility has been one of the major contributions of the social construction of technology approach' (Wyatt *et al.*, 2000: 12).

2.2.1.3 Social Shaping of Technology (SST)

The SST approach is developed and advanced so as to respond to the criticism of earlier STS literature. The criticisms arise from several issues: firstly, early STS work gives undue attention to technology developers and prior technological design. Secondly, the appropriation of already-developed concepts to analyse different technologies as well as contexts in which the technologies are designed, developed and used may reveal the incompetence of these concepts. For example, the concept of interpretive flexibility, which emphasises the negotiability and interpretive flexibility in the early development of novel technical fields and explains the eventual stability (closure), is neither competent to account for a more comprehensive context in which the technology is fostered (Williams, 2002: 5-6) nor sufficient to allow 'operationalisation of the relationship between the wider milieu and the actual content of technology' (Russell, 1986: 335)¹⁹. One of the contributions of SST is bridging the gap between the research

¹⁹ Russell quoted Pinch and Bijker's (1986) original sentence to make his criticism.

on local actors and that on broader social and institutional structures (Williams, 2002: 7).

From the SST perspective, Sørensen (2002) summaries the following concepts of the understanding of technology. The first one regards technology as a catalyst, which sees 'social change as neither made through new technologies nor through new social strategies or juxtapositions of structures, but rather through new socio-technical constellations' (Sørensen, 2002: 22). He explains that 'neither technology nor culture suffices; the result is achieved through interaction and the weaving together of material and non-material elements' (Sørensen, 2002: 22-23). This first concept, with its emphasis on weaving and interaction, relates to the second one, domestication, which argues for the important role that social actors play in the appropriation of technology.

Additionally, SST researchers see themselves not merely as academic scholars but also practitioners who can apply STS perspective on the policy field. This enthusiasm helps alleviate the lacuna existing between two currently separate bodies of literature, i.e. technology studies and policy research. Although the research outcomes may not have a straightforward carry-over into policy, social shaping research may help 'develop a knowledge base for policy' (Sørensen, 2002: 24). Sørensen states that the policy relevance of knowledge stems from the fact that knowledge can help structure the problem and discourse about the problem as well as clarify the problem and available resolution (Sørensen, 2002: 24). In light of this, SST 'could be used to change the understanding of the problem' (Sørensen, 2002: 25) and further draw out different policy outcomes.

2.2.2 Perspectives on the Internet and Society

This section describes three strands of debates on the social implications of the Internet which best exemplify the theoretical debate about the relationship between technology and society and underpin the discursive practices I will appropriate for analysis in this thesis. The first two, technological utopianism and dystopianism are ascribed to technological determinism (Wyatt *et al.*, 2000). 'Underpinning both the utopian and dystopian futures is a very linear sense of the unfolding trajectories of technology development and of their social, economic and environmental implications' (Spinardi and Williams, 2005: 52).

While discussing the digital divide, attention and rhetoric overwhelmingly focus on the digital technologies. However, 'what the "digital" in digital divide actually refers to'

(Selwyn, 2002: 7) should be considered in advance. In this research, ICTs are the main concern, in particular the Internet.

The advent and development of the Internet has been viewed as a by-product of the post-Cold War era (Moschovitis *et al.*, 1999), and participants involved in creating the Internet were from such fields as the military, research institutes, academia, and commercial firms. The space race between the Soviets and the US had begun with the first satellite Sputnik sent into orbit by Soviet scientists in 1957. So as not to lag behind their Cold War competitor, the US Congress passed the National Defense Education Act in 1958, providing a loan to students to foster a new generation of scientists. Meanwhile, the Advanced Research Project Agency (ARPA) was created to bolster national security. Later on, the first multicomputer network, ARPANet, was set up, which consisted of initial research sites in late 1969; in the next two years, more participant sites were involved (Moschovitis *et al.*, 1999). The history of the development of the Internet implies that the motivation for constructing it was not for civilian use, but for the military and national defense.

From the 1960s onwards, Internet development has progressed at a very fast pace. Programmes related to the Internet did not narrowly focus on military defense, but expanded to a wider variety of fields. During the 1970s, with the advent of personal computers, a new array of possibilities for Internet use opened up (Moschovitis *et al.*, 1999), such as the first electronic mail (e-mail), bulletin board system (BBS), and so forth. The Internet gradually became a communication tool which circulated in and between universities and research institutions. However, the public was still excluded during this period. It was not until the 1980s that, alongside the growing user population, the issues relevant to the Internet transformed with the encouragement of commercial use and participation. During the 1990s, commercial use in the US meant that the Internet stepped into a new era.

With the increasing popularity of the Internet, more and more attention has been paid to its advantages and disadvantages. The positions on the social impacts of the Internet are categorised into three common groupings—1) technophile, optimistically treating the Internet as an panacea for political liberation; 2) technophobia, taking the opposite position of worrying about chaos in all aspects of life as a result of the Internet; 3) an in-between position, taking the more moderate attitude of waiting to see how the Internet will perform. Below is a detailed discussion of these three positions.

2.2.2.1 Technophile (Utopian)

The term 'technophile' was coined by Neil Postman in his work titled *Technopoly* in 1993, and means the advocates who support the technology, and are always looking at the positive and encouraging side of the Internet. These advocates believe that this technology is a cornucopia that will remedy all ills (Graham, 1999). Technophiles expect a more open political environment online than that in existing democracy. It is expected that the features of trans-time and trans-space of the Internet can engage as much of the public as possible in political discussion and participation in society. This camp projects utopian imaginations onto the Internet. The famous publications by futurist Alvin Toffler—*Future Shock* (1970), *The Third Wave* (1980), *Powershift* (1990), etc.—are categorised in this camp.

Enthusiasts anticipated that 'the Internet would boost efficiency, making people more productive and enabling them to avoid unnecessary transportation by accomplishing online tasks like banking, shopping, library research, even socialising online. The result would make individuals more fulfilled and build social capital for society at large' (DiMaggio *et al.*, 2001: 314). They also regard the Internet as a means for promoting democracy (e.g. Ott, 1998; Ferdinand, 2000)

However, the technophile position overstates the positive side of the new technology, ignoring the fact that it is used in a structured environment, and technology use requires relevant knowledge, skills, literacy and the like. In addition, in most cases, new technology is no more than equipment; existing social status has significant impacts on technology use and creates diverse consequences. For example, the ability to use the Internet does not only include technological skills, but also competence in language (English literacy). A beginner, who is not familiar with the technological skills of the Internet, not equipped with language ability, or has no relevant knowledge about the topic he is surfing, is not capable of using the Internet in a satisfying way.

2.2.2.2 Technophobia (Dystopian)

Dystopian responses usually follow utopian hopes. Opposed to the standpoint mentioned above, the unavoidable problems brought by the Internet have been noticed by technophobes. Technophobia is a term applied to those people who are against technology, and are often afraid that new technology will have negative consequences for society. These worries concern many fields of life, such as anarchy, surveillance,

child abuse²⁰, pornography, and the like. The scholars in this camp argue that even though a network society is emerging, and people are much more dependent on ICTs than before, society still consists of individualist pairs, groups and organizations (van Dijk, 1999). The networks in a network society have been establishing external and internal relationships; however, they do not construct an ideally equal society (ibid.). Studies have suggested that 'the Internet may induce anomie and erode social capital by enabling users to retreat into an artificial world' (DiMaggio *et al.*, 2001: 314).

2.2.2.3 In-between

The third camp standing in-between adopts an eclectic standpoint. It regards the Internet as a catalyst, rather than a positive or negative force with direct impacts on society. 'The relationship between technology and society is never unidirectional' (DiMaggio *et al.*, 2001: 327). 'Thus, the social impact of the Internet depends on the impact of society on what the Internet becomes' (DiMaggio *et al.*, 2001: 327). For example, it is contended that the Internet indeed opens up a new communication era in terms of two-way communications on the hand; however, it is also argued that the apparently democratic digital communication depends very much on the political situation rather than merely the adoption of the Internet. The participants in the new digital democracy cannot be easily distinguished from those who are politically privileged in the real world. Hence, the Internet at best is a catalyst to create a democratic society, with little power to change our life world dramatically and completely.

A similar but slightly different view of the Internet is what Warschauer calls 'neutralist' (or instrumental) theories of technology (Warschauer, 2003a: 202). This perspective views the technology as a neutral tool, being devoid of content or values. From this viewpoint, the Internet is not particularly good or bad, but just a place for any purpose.

However, all of the perspectives on the Internet mentioned above ignore the social context in which the Internet is embedded. Whether technophobia, technophile, or in-between these two, these views fail to account for the 'social embeddedness of technology' (Warschauer, 2003a: 203). 'Technologies may not be good or bad in themselves, but neither are they neutral; rather, they carry with them certain values

²⁰ To protect children from online sexual abuse, the UK government launched Child Exploitation and Online Protection Centre on 24th of April 2006. Please refer to the website for more details of this center, <http://www.ceop.gov.uk/>

based on their own history and design' (Warschauer, 2003a: 203). This brings my discussion to the important role that contexts play in the interpretation of the digital divide in policy-making. Thus, next section will proceed to the interpretive policy research, and will firstly discuss the concept 'context' and its use in this thesis.

2.3 A Linkage between STS and Policy Research: Context

'Context' serves as the linking point between STS and interpretive policy research for this thesis. These two disciplines agree that the 'context' in which human actions take place (the interpretation of the digital divide issue and digital divide policy in my research) should be considered when social scientists conduct social and political research.

'Context' is exchangeably used with 'structure' in social sciences. In this thesis, I prefer 'context' to 'structure' to underscore the mutual shaping of structure and agent. 'Structure' implies that there are pre-existing physical or more usually, social frames into which agents become fixed. Gusfield (1984) argued that 'structure' 'lends itself too much to a distorted sense of public events as having a fixed, permanent, unchanging character'; instead, 'ideas and events are contained in an imprecise and changing container' (Gusfield, 1984: 9). In this thesis, I argue that policy is not just out there, but a contextualised cooperation between agent and structure.

2.3.1 'Contextuality' in Policy Research

The conception of contextuality was coined by an American political scholar, Harold D. Lasswell, and has been influential through the process of this research. For Lasswell, policy research is an interdisciplinary task and must take the entire context into consideration. Harold D. Lasswell was also the pioneer who proposed an integrated perspective for policy analysts. He called for a 'policy orientation', taking policy research as a combination of multidisciplinary academic enterprises (Lasswell, 1951). For him, the orientation is twofold, which includes 'developing knowledge pertaining to two separable though entwined frames of references, namely, knowledge in and of the policy process' (Fischer, 2003: 3; Lasswell, 1970: 13). Hence, this knowledge is both a goal and means of analysis, and 'provides an orientation to context that is necessary for the conduct of investigation' (Torgerson, 1985: 245). Lasswell's main characteristics of policy orientation are as follows: a multidisciplinary approach, a problem-orientation focus that was contextual in nature, and an explicitly normative orientation (Torgerson,

1985; cited in Fischer, 2003: 3).

In Lasswell's terms, 'contextuality' means the shaping of a 'cognitive map', which is interwoven with social developmental process as well as the environment inside and outside the policy process. The importance of contextuality in policy research is due to 'the entire context of events which may have an impact upon the future problems of policy' (Lasswell, 1951: 4), and 'the world as a whole needs to be kept as the focus of attention' (Lasswell, 1951: 4). Moreover, 'the meaning of any detail depends upon its relation to the whole context of what it is a part' (Lasswell, 1976: 218).

Torgerson, who interpreted and summarised Lasswell's works, stated that 'Lasswell considered such contextual orientation indispensable to the conduct of rational inquiry, and he argues the use of contextual-configurative analysis in the development of a policy science profession' (Torgerson, 1985: 242). 'While Lasswell holds that the policy sciences are to be concerned with particular problems in specific arenas of action, he also maintains that the total configuration must be grasped by the analyst as a relevant object *and* context of analysis' (Torgerson, 1985: 242).

Some research concerning the issue of the digital divide and how to bridge this divide in the past few years has transformed the focus from highlighting the need for physical access to reassessing the significant influences of local context. The journal of *The Information Society* devotes considerable space to remapping the digital divide, which goes well beyond issues of access, and challenges the symbolic, opportunistic, and even the practical ways we have used to address the digital divide to date (Strover, 2003: 276). Additionally, 'their attention to political, social, and economic contexts allows us to see the digital divide as far more than access to equipment' (Strover, 2003: 276).

Contextuality was not only central to Lasswell's initial conception of the policy sciences but has also influenced the subsequent development of interpretative approaches to policy analysis (Swaffield, 1998: 199). For an interpretive policy analyst, discourses are the foci for analysis. The researchers widely adopt this concept of contextuality in the research to 'accept that meanings of words and concepts in public policy vary according to the setting in which they are used' (Swaffield, 1998: 199).

Although Lasswell proposes a very promising concept for policy analysts to conduct policy research, the operationalisation and conceptual framework for adopting his concept into empirical research is unclear. Here, I borrow Rein and Schon's work (1993:

154-155) to serve as an example of applying 'context' into empirical research. Rein and Schon embark on the recognition that the framing of a policy issue is always carried out within a 'nested context', which can be distinguished on at least four levels. The first level is the policy programme, which may serve as its own internal context, adjusting through changing situations and the replacement of its personnel, sponsors or clients. The second level is the proximate context in which one programme may interact with other policies. The third level is the macro context which includes institutional changes, such as the institutions designed to carry out policy, realignment of party politics, and economic fluctuations. The last level is situated in the global context, where a shift of perception concerning one issue may 'have a striking impact on the framing of policy issues' (Rein and Schon, 1993: 155).

Rein and Schon's operationalisation of 'context', divided into four levels, from micro, meso to macro, offers a clear-cut framework for conducting empirical analysis. The third level that they engage with in their work will serve in my own analytical framework as the national context, and the fourth level as international contexts in which the digital divide issue and digital divide policies are fostered. I will return to this point and develop it in detail in the final section of this chapter.

2.3.2 STS Perspectives on 'Context'

STS also pays attention to context, focusing especially on the intervention of the state. From the Social Shaping of Technology (SST) perspective, as Schneider (1997) argues, the question becomes 'why a technological project does not remain solely with technologist or business firms, but becomes a matter of public policy and state decision-making' (Schneider, 1997: 341). He subsequently provides three possible answers to his question. He explains that, firstly, from an economic perspective, it is because 'market-guided economic activities fail to provide an autonomous and self-regulated solution to a particular social need' (Schneider, 1997: 341-342), and technological infrastructure is an example (Schneider, 1997: 342). Secondly, from a macro sociological perspective, the reason for political intervention is because 'non-economic governance mechanisms have the status of "devices of last resort"' (Schneider, 1997: 342). Finally, it is because of 'core interests of elites, classes, or other power groups which capture and instrumentalise the state apparatus to achieve their goals' (Schneider, 1997: 342-343).

Another STS scholar, Sheila Jasanoff, also emphasises the importance of political

culture in science and technology policy. She proposed the idiom ‘co-production’ in 2004, and in 2005 she furthered this idiom in her comparative research in biotechnology politics and policy in Britain, Germany and the United States. In her definition, ‘political culture refers to systematic means by which a political community makes binding collective choices’ (Jasanoff, 2005: 21). She argues that political culture is crucial because it ‘matters in shaping the politics of science and technology’ (Jasanoff, 2005: 21). Political culture in her interpretation is not an empty concept, but ‘encompasses institutionally sanctioned modes of action such as litigiousness in the United States, but also the myriad unwritten codes and practices with which a polity supplements its formal methods of assuring accountability and legitimacy in political decision making’ (Jasanoff, 2005: 21). Therefore, the application of political culture in contemporary knowledge societies includes three components—including ‘the tacit, but nonetheless powerful, routines by which collective knowledge is produced and validated’ (Jasanoff, 2005: 21); embracing ‘institutionalised approaches to reasoning and deliberation’ (Jasanoff, 2005: 21); and including ‘the moves by which a polity, almost by default, takes some issues or questions out of the domain of politics as usual’ (Jasanoff, 2005: 21). Without these components, culture is merely a ‘notoriously slippery concept’ (Jasanoff, 2005: 22).

2.4 Domestication

Connected with my endeavour to understand the influence of context is the concept of ‘domestication’, which I use to analyse how policies and discourses are transformed as they move between different contexts of policy debate and into contexts of policy implementation. Silverstone (1991) coined the concept of domestication to explain how technologies were brought into the home and everyday life. Sørensen develops this concept further in ways relevant to my purposes. He broadens its application from the home to all aspects of life (1996). In contrast to a linear reception model, he states that the term ‘domestication’ metaphorically shows ‘the need to “tame” facts and artifacts that are taken from a “wild” outside world and put into a domestic setting’ (1996: 8). He proposes four elements of domestication in order to make the application more concrete. Firstly, artifacts have to be *acquired* and in some way made available. Secondly, artifacts have to be *placed* and situated in a physical, symbolic and mental space. Thirdly, artifacts have to be *interpreted* and given meaning within a local context. Fourthly, artifacts have to be integrated into *social practices* of action (Sørensen, 1996: 8). Drawing upon literature from anthropological analysis as well as from consumption and media studies, Sørensen (1996) elucidates that meaning is vital and that people need meaning in

order to make sense of their own lives, both within their local context and within their 'social learning' context of new science and technology. He also applies the idea of domestication to the policy domain to show that the multimedia is domesticated in different ways at different policy levels and locations (Aune and Sørensen, 1998; Brosveet and Sørensen, 2000).

Following Sørensen, some scholars have sought to develop the concept of 'domestication' to analyse how ideas have been selectively appropriated (and discursively transformed) in different local contexts. In their analysis, 'domestication' is no longer confined to analysing technology adoption (in contrast to its original use in household studies). For example, Graham *et al.* (2008, PRECEPT working paper) investigate how the change management programme of Business Process Re-engineering (BPR) has been unevenly taken up and interpreted as it has moved into various nations and linguistic regions. They emphasise that the uptake of ideas is not a linear process – as might perhaps be conveyed by concepts like 'diffusion' with its template of physical movement of an unchanged physical entity. Instead it is 'an active process of appropriation in which ideas are selectively adapted and may be transformed as they move between actors and contexts' (Sørensen, 1996: 8).

The PRECEPT working paper traces the origin of the concept of BPR back to the US in the early 1990s. These scholars find that the concept of BPR starts to obtain wide attention from a paper by Hammer and Champy in 1993 along with some other contemporaries, and that it is quickly promulgated to the European countries. It shows that gurus, consultants, and mass media play an important role in the initial promulgation of BPR. Consultants and user organizations are important components in the applications stage. Consultants transform BPR based on the demands of the user organizations, because the managers of the user organizations know what they need from the consultants and have knowledge of BPR prior to asking for help from consultants. The managers of user organizations are not just passively waiting for help from the consultants without having any ideas in their minds.

The PRECEPT working paper finds that there are complex patterns of appropriation of BPR. Prior alignment with BPR concepts emerges around certain kinds of problem definition and solutions. However there are differences in the way in which BPR is appropriated and domesticated within various national contexts. For example, in Spain, BPR is incorporated in the more evolutionary Human Resource Management models. In Slovenia, other labels (e.g transformation, restructuring, etc.) replace BPR to indicate

the renovation of business processes in order to get rid of the stigmatized definition of BPR—downsizing—in Hammer's concept of BPR. In Germany, BPR is selectively reconfigured and reinterpreted within more established concepts of business improvement under the label Lean Production, emphasizing the co-determination culture in German industry. These cases illustrate the different ways in which BPR concepts are appropriated and domesticated.

The development of the concept 'domestication' in the PRECEPT working paper has analytical salience for the issue under scrutiny in this thesis. First of all, as a helpful analytical concept, 'domestication' is extended and developed from the research on technology appropriation in the household so as to analyse how an idea is selectively taken up and interpreted in different contexts. Secondly, the importation of BPR from the US to European countries and then selectively taken up by different countries inspires my analysis - how an ambiguous idea, the 'digital divide', is exported from the western countries and is selectively taken up by policy-makers in my case countries.

The PRECEPT working paper recognizes that the concept of BPR is transformed in different contexts, where the actors choose a more established concept to replace BPR. However, the aforementioned research lacks any analysis of how a concept has been taken up linguistically between different languages. This is obvious in the literature of digital divide research. The linguistic element of domestication/appropriation may be easily overlooked by English speaking scholars, who may take for granted widespread fluency and accessibility. They ignore the fact that the linguistic translation of one concept is part of the process of domestication. In my study, interesting processes of linguistic translation are at play—selecting a Chinese term to describe the 'digital divide' involves linguistic domestication. The process through which policy-makers look for appropriate terms in their own language—linguistic translation—should be regarded as performing the first stage of domestication. Thus, linguistic domestication will come under scrutiny in this research.

In addition to the linguistic domestication, I will also investigate how the concept of the digital divide is interpreted within the local context in two case countries. This is inspired by the work of Brosveet and Sørensen (2000: 263), which applies the idea of domestication in order to analyse how generic accounts of multimedia are taken up within particular national contexts of Norwegian education policy. Brosveet and Sørensen first look at the localized definition of multimedia in Norway, which defines multimedia by its locally produced contents rather than by its technical components

(2000: 266). They thereafter investigate the realignments and restructuring of participating actors to domesticate multimedia in Norway (2000: 270). They finally investigate the practices the Norwegian government has made to show how the domestication of multimedia takes place in Norway. Drawing upon the application of the concept of domestication by Brosveet and Sørensen, as well upon the PRECEPT working paper, I will examine the local understanding of the digital divide in my case countries. Furthermore, I will use specific examples to illustrate the precise practices these countries use to bridge the digital divide.

2.5 Interpretive Policy Research: Analytical Framework

As mentioned above, STS provides certain insights that are useful for the researcher when he/she is scrutinizing the relationship between technology and society. It reminds the researcher that there is 'interpretive flexibility' when interpreting the relationship between technology and society. While STS provides insights for my investigation and the main lines of analysis for this thesis, I have turned to interpretive policy research to provide a comprehensive policy research framework for this project. I also draw upon information and concepts from STS to aid my interpretive policy enquiry whenever it becomes relevant.

In addition to the concept of 'context' as discussed earlier in this section, I will present the interpretive policy research framework by linking together several other elements: discourses, actors, and outcomes. The combination of these elements comes with the consideration that discursive accounts of digital divide policy may prove elusive if they are not investigated empirically within international and national contexts (this is also emphasized in the SST approach). By the same token, however, empirical analysis that simply assumes that international and national contexts logically influence policy-making and implementation fails to see that policy-making and implementation follow from the discourses/storylines that are used to frame the digital divide. The discourses in terms of storylines serve as the mediator that connects contexts and policy. Each subsection will discuss relevant concepts and their advantages and disadvantages for this thesis. This provides a linkage to my selection and development of the analytical framework of this thesis.

2.5.1 Adopting Discourse Analysis in Policy Research

This subsection deals with the adoption of discourse analysis in interpretive policy

research. It firstly explains the reason why discourse matters in policy research. Then I distinguish three approaches of language-centred analysis to explain why I adopt discourse analysis, instead of content analysis and conversation analysis, for this research.

2.5.1.1 Why Discourse Matters in Policy Research

Parsons (1995) in his constructivist policy analysis textbook *Public Policy: an Introduction to the Theory and Practice of Policy Analysis* articulates the relationship and interaction between policy analysis and discourse. He states that ‘the focus of the argumentative approach is the study of how language comes to shape the way we make sense of the world. From this perspective, the analysis of public policy involves exploring the way in which “policy discourse” comes to frame the arguments in which problems and agendas are constructed. The starting point for the mode of analysis is the notion that the language we use to talk about policy problems is not neutral’ (Parsons, 1995: 151).

When discourse analysis is adopted in policy research, it is ‘defined as a specific ensemble of ideas, concepts, and categorisations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities’ (Hajer, 1995: 44). ‘Social and political scientists now widely accept that the meanings of words and concepts in public policy vary according to the setting in which they are used. This increasing attention to the meaning of particular terms used in policy discourse reflects a wider “linguistic turn” in the social sciences’ (Swaffield, 1998: 199). In this sub-section, I argue that discourse functions on two levels. First of all, discourse functions in the role of making a phenomenon visible. Secondly, in order to activate the first role, discourse defines and frames the phenomenon and further suggests the way to solve the phenomenon.

In the first place, I use Gusfield’s example of drink-driving to present the importance of discourse in defining a social problem and in influencing public policy. Then, I move on to discuss another two scholars’ works to show how discourse analysis is of great significance in interpretive policy research. One is Hajer’s work on the politics of environmental discourse (1995), and the other is Gottweis’s work on the discursive politics of genetic engineering (1995; 1998). Both of their works have informed the way that the relationship between discourse and policy is investigated in this thesis.

Gusfield (1984) argues that a phenomenon cannot be a social problem if there is no

problem-owner to define the phenomenon at stake as a problem. Before the problem owners connect the two actions of drinking and driving, and give them a causal relationship, car accidents are merely a countable cause of death juxtaposed with other causes such as cancer. At this moment, car accidents are regarded as motorists' individually uncontrollable behaviours, which draw public attention to the 'un-safety' of cars, and ascribe responsibility to individuals. In this sense, car accidents are not public problems; individuals are responsible for the accident instead of policy. However, when the mass media, and the mothers of the victims in car accidents announce that car accidents are nothing to do with car safety, but with drinking, then the phenomenon is defined as a drink-driving problem which the government should take action to tackle. In this case, interpretation has the power to change the understanding of an issue, and alters the way it is dealt with.

Gusfield's work reveals that social problems are not just 'out there', but are the outcome of interpretation. Hajer furthers this point and proposes an analytical framework 'discourse coalition' to underscore the role of discourse in understanding the phenomenon in question. Hajer (1995) is concerned with the emergence of the discourse of 'ecological modernisation' in environmental discourses within global and national contexts. He proposes two analytically middle-range concepts 'discourse coalition' and 'storylines' to investigate the case of acid rain in two countries—the UK and the Netherlands. He argues that policy research should focus on the impact of discourse on institutional changes, because policy change and institutional change are interwoven with the way that people interpret the environment where they live. His 'discourse coalition' is divergent from Sabatier's 'advocacy coalition' (Sabatier, 1988; Sabatier and Jenkins-Smith, 1993). Hajer admits that there is major overlap between his and Sabatier's analytical frameworks and that in several points he agrees with Sabatier. Firstly, he agrees with Sabatier that investigation should focus on the process of coalition formation at the level of a policy subsystem or policy domain and emphasis should be placed on the shared ideas/beliefs between various actors. Secondly, he agrees that the interaction between coalitions should be analysed. Finally, he agrees that the controversies between coalitions should be understood against external parameters such as social and institutional structures (Hajer, 1995: 69). However, Hajer argues that 'what people say differs according to the practice in which they engage' (Hajer, 1995: 69). In this sense, the key point which influences whether people choose to stay in a coalition is not advocacy, but what coalitions say, the discourse. Language in terms of storylines changes people's beliefs, and belief determines whether people choose to stay in coalitions. In practical and analytical terms, discourse coalitions conduct storylines to

change the way people understand this world. Eventually, discourses foster institutional changes.

Gottweis's work is an exemplar that illustrates the significant role that language plays in policy making. Gottweis (1984) investigates the changing interpretations of genetic engineering between two case studies—Europe and the United States—chronologically from the 1930s onwards. He also scrutinises other pertinent discourses to explore how these discourses interrelate/intertwine/interact to foster the politics of genetic engineering in Europe and the United States. Gottweis finds that genetic engineering is embedded in a broader modernisation discourse, which underpins science and technology policies in contemporary times. Gottweis also discusses the impacts of international biotechnological discourse in Europe; 'the European "politics of genetic engineering" is part of a larger political texture interwoven with images, development, and myths of American biotechnology' (Gottweis, 1998: 6).

To sum up, the aforementioned scholars' works all share several key concerns: they all emphasise the critical role that discourse plays in policy making and social change; they are all aware of the interactive/mutual shaping between action and structure, say, the context. They all flag up an important element in investigating the process of policy-making, which is the context. This existing literature supports the articulation of context and interpretation into digital divide policy.

2.5.1.2 How is Discourse Analysis Defined in this Research?

As mentioned in the previous section, 'context' plays a role of great importance in interpretive policy research. I argue that policy should be regarded as a socially constructed text embedded in the context (s); simply focusing on the mechanical structure of texts or frequencies of representations de-contextualise the words from the discourse being examined (Wilson, 1993) and does not suffice to scrutinise the interpretive process of policy definition and formulation. 'Under some circumstances mere counting can lead to misleading conclusions' (Billing, 1988: 206). Therefore, in this section, I distinguish my approach of discourse analysis from two other frequently-used approaches in language-related research to elucidate which approach is suitable for my research in terms of the definition of 'context' that I appropriate in this research. One is Content Analysis of texts, which is a positivist approach that calculates the frequencies of coded terms, and the other is Conversation Analysis, which concentrates on the microstructure of the mechanic elements of a sentence or other narrowly

defined text.

Content Analysis

Content Analysis is a popular quantitative method in the field of mass communication studies. It involves coding predetermined categories that are then used to count the content of mass media products (Silverman, 2004: 27). Researchers use this method to 'establish a set of categories and then count the number of instances that fall into each category' (Silverman, 2004: 12). In order to make sure that the same result can be reached by different coders while they examine the same data, the crucial requirement is that the categories are sufficiently precise (Silverman, 2004: 12). This is also the advantage of content analysis—reliability of measures (Silverman, 2004: 12). However, the disadvantages of content analysis overshadow its advantages in three respects: the theoretical basis is unclear; the conclusion may be trite, and it draws the attention away from materials which do not fit the predetermined categories (Silverman, 2004: 12).

Conversation Analysis

In contrast, Conversation Analysis is commonly used in the analysis of spoken texts. Conversation analysis is based upon three assumptions (Silverman, 2004: 167). The first assumption regards talks as stable and organised patterns, which are independent of the psychological or other characteristics of particular speakers. The second assumption is that a speaker's actions have sequences, which means each action is following the preceding sequence and cannot be read without referring to the previous action. This assumption is used to defend Conversation Analysis against criticism that it pays scant attention to 'context'. I put quotation marks around the concept 'context', because the concept of 'context' used for defense by conversation analysts is not identical to that in interpretive policy research. The concept 'context' in conversation analysis refers to the sequence of talk, rather than the broader social, cultural and political contexts that I adopt for analysis in this thesis. The final assumption of Conversation Analysis is its empirical grounding of analysis, which means that the empirical studies of Conversation Analysis should be conducted in terms of precise analysis of detailed transcripts; any premature theory construction should be avoided.

Discourse Analysis

Grillo (1989) provides an explanation of the difference between conventional linguistics

analysis, e.g. Conversation Analysis, and Discourse Analysis, and argues that the term discourse is employed in a variety of senses, which for convenience may be reduced to two. 'In conventional linguistics, discourse refers to verbal exchanges, the flow of speech in conversations. This is what "discourse analysis" in linguistics actually studies. But discourse may also refer to a wide range of higher-order linguistic practices, of which conversation is but one sentence' (Grillo, 1997: 12). Moreover, 'the discourse analysis has to cover all that is socially and culturally worked through language. Yet this must involve a detailed process of *contextualisation*' (Grillo, 1997: 12, with emphasis in original). Therefore, the major distinction between conversation analysis and discourse analysis is that, as mentioned above, 'context' in conversation analysis refers to the sequence of talk, but in discourse analysis, it takes wider social contexts into account while conducting analysis. This concern with 'contextualisation' in discourse analysis is much more suitable for this thesis and is illustrated by the following definitions of 'discourse':

...it refers to language use anchored in an institutional context, expressing a fairly structured understanding or a line of reasoning with active, productive effects on the phenomenon it claims to understand 'neutrally. [...] Discourses are not produced or mastered by the individuals: they speak him or her, in what available discourses position the person in the world in a particular way and at a given time, prior to the individual having any sense of choice' (Alvesson, 2002.)

Discourse must be set in institutional context, not only as one factor among a range of salient factors, but also in terms of its institutional settings, that is, in terms of the vast range of rules—culturally framed, path dependent, or interest-based on the national level, institutionally agreed (Schmidt & Radaelli, 2004: 184).

2.5.2 Middle-Range Concept for Analysis—Framing a Storyline

Hajer argues that there is a need to create 'middle-range' concepts through which the 'interaction between discourses can be related to the role of individual strategic action in a non-reductionist way' (Hajer, 1995: 52). In his work, 'storylines' serve as what he identifies as 'middle-range' concepts. In this section, I concentrate on the 'storylines', discuss how storylines are mobilized in policy discourse by means of framing, and then elicit the core elements in framing.

2.5.2.1 What is a Storyline?

Hajer uses 'storyline' to serve as the middle-range concept in the analysis of discursive practice in environmental discourse. The following are the definitions he gives for his research:

'A story-line, as I interpret it, is a generative sort of narrative that allows actors to draw upon various discursive categories to give meaning to specific physical or social phenomena.' (Hajer, 1995: 56)

'Story-lines are narratives on social reality through which elements from many different domains are combined and that provide actors with a set of symbolic references that suggest a common understanding. Story-lines are essential political devices that allow the overcoming of fragmentation and the achievement of discursive closure.' (Hajer, 1995: 62)

Following the definition used by Hajer, 'the point of the story-line approach is that by uttering a specific element one effectively reinvokes the story-line as a whole. It thus essentially works as a metaphor' (Hajer, 1995: 62-63).

Hajer further outlines the utilisation and the functions of story-lines. 'First of all story-lines have the functional role of facilitating the reduction of the discursive complexity of a problem and creating possibilities for problem closure. Secondly, as they are accepted and more and more actors start to use the story-lines, they get a ritual character and give certain permanence to the debate. They become "tropes" of figures of speech that rationalise a specific approach to what seems to be a coherent problem. Thirdly, story-lines allow different actors to expand their own understanding and discursive competence of the phenomenon beyond their own discourse of expertise or experience' (Hajer, 1995: 63).

The concept of 'storyline' is also adopted by others, such as Pål Næsje, who argues that 'the use of stories and story-telling has been studied quite extensively in organisational settings, as a part of narrative processes in organisations. It seems uncontroversial to hold that stories are a part of an organisation's symbolism and culture, and can act as vehicles for communication and learning. It is held that stories are one of the artifacts that generate and sustain meaning and, more importantly here, underpin world-views and rationality in organisations. As such, these stories can also play an important, if neglected, role in policy-making processes' (Næsje, 2002: 278).

Hajer further explains the advantages of using storylines as a middle-range concept for analysis. 'Story-lines fulfill an essential role in the clustering of knowledge, the positioning of actors, and, ultimately, in the creation of coalitions amongst the actors of a given domain. Story-line is the analytical term that unites several established concerns in research in the constructivist tradition' (Hajer, 1995: 63).

'Story-lines, in other words, not only help to construct a problem, they also play an important role in the creation of a social and moral order in a given domain. Story-lines are devices through which actors are positioned, and through which specific ideas of "blame" and "responsibility", and of "urgency" and "responsible behaviour" are attributed' (Hajer, 1995: 65). 'They determine the interplay between physical and social realities. Storylines are seen as the vehicles of change and are analysed in connection to the specific discursive practices in which they are produced' (Hajer, 1995: 65).

For Hajer, 'argumentative discourse analysis holds that the power of story-lines is essentially based on the idea that it sounds right' (Hajer, 1995: 63). And this interpretation of storylines is very similar to the idea of 'myths' that will be discussed later.

Jasanoff also applies the concept of 'storyline' in her research. She states that 'the regulation of science and technology, whether to further innovation or control risk, can fruitfully be seen as a kind of storytelling by communities situated in particular times and places who are attempting to deal with unsettling or disruptive changes in their environments' (Jasanoff, 2005: 23). She further argues that 'stories told in the policy arena attempt to order and make sense of complex experiences; they enable people to take meaningful action and so reduce their feelings of helplessness and alienation' (Jasanoff, 2005: 23-24). The elements of storylines 'often embedded in material objects and routinised social practices, impose discipline on unruly events by creating understandable causal relationships, identifying agents of harmful behaviour, and finding solutions that convey a sense of security and moral order' (Jasanoff, 2005: 24).

2.5.2.2 The Employment of Storylines in Policy-Making—Framing

Here, I use a verb 'framing' instead of a noun 'frame' to indicate that, perceiving an issue as problematic and further making decisions to resolve the perceived problem is a recurrent process, undertaken by participants. Yanow (2000) makes similar distinctions between these two usages in terms of the form of the analytic study. According to

Yanow, “frame” as a noun suggests a comparative analysis across communities of meaning at a (relatively) fixed point in time, of the various ways in which a policy issue has been “framed”, that is, interpreted and understood’ (Yanow, 2003: 13). In contrast, “frame” as a verb suggests a more dynamic analysis of changes in issue “framing” over time, possibly within a single community of meaning’ (Yanow, 2003: 13).

In the policy literature it is believed that the quality of resolution to a perceived social problem depends on the way it is framed (Jasanoff, 2003: 240). In this subsection, I selectively draw on discussions which are pertinent to my research interests in the process of ‘framing’ from the areas of literature on policy research, claim-making, and boundary work.

Social Learning in Policy—Two Distinctive Meanings

Policy-making usually begins when something is perceived to be ‘wrong’ by people. ‘Something’ could be either a social phenomenon, or current policy. From a satisfying perspective, policy changes begin because the policy-makers feel dissatisfied with current policy arrangements, and a gap between present aspirations and achievements needs to be bridged (Rose, 1991).

Heclo (1974) described this dissatisfaction as ‘collective puzzling’, which ‘stands as the original construct of political learning’ (Freeman, 2005: 372). Drawing on social learning²¹ theory, he also pinpoints the awareness of problems as a necessary element of policy-making; and further identifies the crucial role that the state plays as the main actor of social learning, challenging the ‘black box’ image of the state from ‘earlier pluralist conceptions of policy making’ (Zarkin, 2003: 284). That is, policy changes take place when ‘government decision-makers become dissatisfied with previous policy and search for new solutions to societal problems’ (Zarkin, 2003: 284).²²

Heclo also emphasised the role of ideas in policy-making, but not elicited the way ideas acting in policy process (Hall, 1993). For an extension and modification of Heclo’s

²¹ There are at least two distinctive meanings to ‘social learning’—one is a narrow cognitive approach, and the other sees social learning as involving not only cognitive processes but also processes of negotiation and struggle (e.g. Brosveet & Sørensen, 2000; Williams, 2000). This research takes these two meanings into consideration when dealing with policy actors’ social learning in policy. Now I will begin with the first narrow meaning.

²² Here, Zarkin uses ‘social learning theory’ for an analytical framework. However, the implications are the same as the conception of ‘lesson-drawing’ and ‘policy learning’. He obviously mixed these three terms for indicating the same meaning in theoretical application.

concept of learning, Hall borrowed the term 'social learning' from psychology to explore the common understanding of the goal of policy, instruments and the nature of problems to which policy is addressed (Hall, 1993) in an interpretive policy research framework. Rose further proposed the concept of 'lesson-drawing' to answer the following question: 'under what circumstances and to what extent can a programme that is effective in one place transfer to another?' (Rose, 1991: 3).

Rose (1991) argued that the motivation for lesson-drawing stems from the 'dissatisfaction' of policy-makers with current programmes failing to solve emerging problems; policy-makers then search for new solutions from the past or other countries. Rose listed several reasons for dissatisfaction as follows: 1) uncertainty in the minds of policy-makers due to the increasingly complex relationship between programmes and society; 2) changes in the policy environment, which make the existing programme incapable of solving the new problems; 3) changes in political values, which lead the government to do something it never thought to do under the scheme of existing programmes; 4) if the policy-makers do not do anything about the issue at stake, then they may lose their political positions.

Claims-Making

When dissatisfaction is strong enough to motivate people to look for solutions, problem defining/framing would be the next step to stimulate policy-making. From the social constructivist perspective on social problems, Best (1995) strongly emphasised the role of claims-making in the process of problem framing, and made two critiques of dominant, objectivist social problem research. First of all, he criticised the traditional, objectivist social problem perspective which '*ignores the subjective nature of social problem*' (Best, 1995: xvi). Social problems are perceived and defined by people. This can also illustrate why 'not all harmful conditions are considered social problems' (Best, 1995: xvi). Secondly, he argues that even though an issue is defined as a social problem, 'the objective conditions that people define as a social problem have relatively little in common' (Best, 1995: xvii). Thus, Best, from a social constructivist standpoint, has indicated that the way in which an issue is designed as a social problem is not a self-evident phenomenon.

In Best's claims-making framework, claims-makers and the claims-making process are two other foci to be considered. In order not to be 'distracted by the social conditions about which claims are being made' (Best, 1995: xvii.), the focus in his proposal is on

how the claim is being made, rather than claim-makers and the claim-making process. Lasswell's aforementioned conception of 'contextuality' can be used to address this gap in Best's analysis.

Along with the claims-making, Best (2001, 2004) in his later work singled out 'statistics' as a key element in the process of problem-defining. He stated that statistics/numbers are favoured by claims-makers, for whom the numbers can be a resource used to include or exclude an issue from the list of social problems. These statistics/numbers/surveys may be conducted by the governmental administration or private companies, academic scholars, etc. For most national surveys, the government usually takes the initiative to conduct or delegate academic/survey organisations to make a report. In the process of conducting surveys, especially while deciding the variables, the issue at stake is being categorised, labeled and constructed. The task of conducting a survey is to condense a complicated social issue to a concrete/simple map, which helps people sketch the problem in an easy way. This is also the role that statistics/surveys play in the process of claims-making, or problem-framing in the course of policy making.

In this research, numbers/statistics are not the focus for analysis. In other words, the authenticity of the numbers is not the concern of this research. Rather, the focus is on the way an issue is defined by the variables chosen to measure it, e.g. the penetration of ICTs. The utilisation of survey reports in this research is further discussed in Chapter 3 for methodological reasons.

Myths

Some researchers use the term 'myth' to extend the middle-range concept of 'storylines'. They argue 'stories about the world never originate in a void: they always represent a pre-selected point of view embedded in an existential position' (Hamelink, 1986: 7). These scholars give 'myths' definitions based on their empirical work. For example, Hamelink states that 'a myth is a story through which the world is explained to us' (Hamelink, 1986: 7). Neufville and Barton argue that 'myth, [...] fits Webster's primary definition, "a usually traditional story of ostensibly historical events that serves to unfold part of the world view of a people or explain a practice, belief, or natural phenomenon"' (Neufville and Barton, 1987: 182).

For these scholars, a myth plays a critical role in the policy process, in particular in the course of problem defining—"behind widely accepted problem definitions are myths,

stories which draw on tradition and taken for granted knowledge' (Neufville and Barton, 1987: 181).

What characterizes a myth? Berger and Luckmann (1967) argue that 'first, the logic of myths is a magical one. Second, though a myth may be part of shared knowledge in a community, it exists in different versions, and even a single version has meanings which differ according to the personal experience through which individuals interpret it. Because the moral of a myth is not explicit, ambiguity is inherent in its public use. Third, myths change very slowly. Fourth, because a myth has a primary function of helping to maintain the political and social structure in a community, it also can provide rationalisations to cover tensions and contradictions inherent in the structure (Berger and Luckmann, 1967). Finally, rather than the myths being designed to support policy strategies, policies may be designed to support the myths (Neufville and Barton, 1987: 184).

How are myths applied in problem framing? Neufville & Barton (1987) argue that 'these myths, which may or may not be true in a factual sense, are important to the definition of problem because they link public issues to widely accepted ways of understanding the world and to shared moral evaluations of conditions, events, and possible solutions to problems. Such myths perform a double-edged function in a policy or planning process. On the one hand, they can provide creative inspiration for policies, a way of translating community values into action proposals, and a powerful means to communicate to a broad public and rally support. They can mediate social and economic change by allowing new policies to carry familiar meaning. On the other hand, a myth can conceal crucial contradictions and realities, legitimise policies that benefit the powerful and support anachronistic perceptions of policy problems' (Neufville and Barton, 1987: 181).

When myths are used in policy, they 'are an important source of meaning, even in modern societies. They provide analogies that help make sense of events and provide simplifications of a more complex reality. Because they are well known in a community they provide shared rationales to behave in common ways. They are created in a particular culture from its repertoire of images, symbols, characters and modes of action' (Neufville and Barton, 1987: 182).

Thus, myths play 'a simultaneously conservative and creative role in problem definition. They can provide new ways of seeing issues and point toward policy directions. But they

can also blind people to alternative ways of seeing a problem and to alternative solutions. The myths provide the basic assumptions and thus helped limit controversy through agreement on problem definition' (Neufville and Barton, 1987: 198). 'The myth frames both problem and solution and it means that goals or criteria are not explicit' (Neufville and Barton, 1987: 202).

In relation to my research, Hamelink's application of 'myth' that intends to unveil the information society discourses serves as an example. He argues, 'this myth offers a normative implication of its historical interpretation. It suggests that the "information revolution" is the most significant historical development of our time: a revolutionary transition to a fundamentally different age' (Hamelink, 1986:7). He furthers this argument that 'rather than thinking in terms of revolutionary change from the past, the information society could be described as a logical successor to previous historical phases. What is termed "information revolution" could, in a more sober analysis, be seen as equally *non*-revolutionary as its predecessor, the industrial revolution' (Hamelink, 1986: 8).

Hamelink's (1986) argument provides insights for my research in the way he regards the information society as myth. He proposed three dimensions: economic, political and cultural. The economic myth indicates that 'the information society will witness the end of the capitalist, industrial production with its inherent vices of centralisation, expansion, standardisation, synchronisation, and exploitation. There will be a shift from industrial production to the provision of services in a de-monopolised and diversified market.' The political myth says that 'the political arena of the information society is participatory. Its decision-making is decentralised and its insistence on greater access to information for all its citizens equates with the shifts of power from the governing elite to the real democratic process of the push-button referendum.' The cultural myth promises that 'in the information society, the misery of labour is taken away from the human being and appropriated by the electronic system; flexible and smart robots create unprecedented leisure time' (ibid).

Miranda (2005) also pinpoints how 'technological myths' (Miranda, 2005: 11) are appropriated by the media and by policy-makers when they portray the relationship between technology and social change. Firstly, they ignore the fundamental nature of the creation of technology by society. Secondly, it involves the myth of the 'technical fix', 'the implicit assumption that technology provides the only feasible solution to complex social problem' (Miranda, 2005: 3). 'The third is the use of myths about

technology in order to promote particular policies and help create particular ideologies' (Miranda, 2005: 3). 'This makes use of the power of myth in mobilising human imagination to engender commitment to particular policies' (Miranda, 2005: 11).

As mentioned above, myths serve as core mechanisms in storylines when framing an issue at stake. Hamelink's and Miranda's analyses of 'myth' pay particular attention to 'information society' and relationship between technology and social change, which are of great use for this thesis in investigating how ideas and myth are applied in empirical analysis pertinent to the discourses/storylines of the Internet, information society, and the digital divide in China and Taiwan.

Boundaries

I argue that framing a policy problem may be regarded as drawing the boundaries between policy fields. Here I take two examples to demonstrate the impacts of framing on drawing the boundaries between policy fields—one is Bennett and Raab's (2006) proposition of 'privacy protection as social policy' and the other is Lyon's work on surveillance. These two cases may provide theoretical and empirical support for my argument.

Bennett and Raab raise an important but long ignored question about the 'privacy subject' in privacy protection—is privacy protection taking equal care of all categories of citizens within society—to question the common assumption that privacy protection is an enforcement of a Right or attributable to individuals' choices (Bennett and Raab, 2006). If the answer to Bennett and Raab's question is no, then the issue related to privacy protection should be considered from the perspective of social equality. Why are some people well protected, but not others? Why are private data that are used in some circumstances well protected, but not in others? The policy agenda following these questions from this perspective of equality may turn out to be how to make policy to achieve this goal of 'equality' in privacy protection and attribution of privacy, rather than developing more advanced technologies to protect privacy. In other words, by drawing attention to social equality in privacy protection the corresponding policy about privacy protection may fall into the social policy field or other fields instead of merely the technology policy field.

Now we turn to the other case—surveillance. Lyon argues that surveillance 'is not merely about new technologies' (Lyon, 2003: 151), nor merely about 'endangering

personal spaces of freedom' (Lyon, 2003: 151). The technological perspective falls into the trap that it ignores surveillance as a representation of power, and the personal freedom perspective is over-individualistic. Both miss the point that surveillance is a social question and contributes to 'social-sorting' (Lyon, 2003:151). In this sense, surveillance could be categorised into the social policy field.

These two cases present us with an alternative view of the multiple frames a policy issue may hold. By providing these two examples I do not mean to suggest that privacy protection or surveillance should be categorised into the social policy field rather than other fields. Rather, I utilize them to show how problem framings can influence policy making. Selection of one of the framings involves drawing boundaries. In the next subsection, I discuss the mechanisms in framing.

2.5.3 Actors

In this section, I discuss the works from Yanow, Sabatier, Hajer, and Wilson to show how they apply the concept of actors in their research. I will adopt the advantages from their works to apply in my analytical framework.

In Sabatier's (1988) approach, the participants in policy-making are composed of advocacy coalitions and are political elite-oriented, which highlights the interactive process of actors from different institutions. These actors are professionals in science, technology, politics, journalism, etc.

Furthermore, he extends the list of actors in the policy process, 'from "iron-triangles"—administrative agencies, legislative committees, and interest groups at a single level of government—to include actors at various levels of government active in policy formulation and implementation—journalists, researchers, and policy analysts who play important roles in the generation, dissemination, and evaluation of policy ideas (Sabatier, 1988: 131)

Hajer uses an alternative term/concept—discourse coalitions—which contrasts with Sabatier's 'advocacy coalitions'. He pinpoints three essential differences between advocacy coalitions and discourse coalitions, which are as follows: 1) an individualist ontology vs. a relational ontology; 2) the central role of beliefs in advocacy-coalitions vs. an emphasis on the constitutive role of language and the role of storylines and discursive affinities in discourse coalitions; 3) Sabatier's notion of policy-oriented

learning differs from Hajer's theory of social change (Hajer, 1995: 69).

For Hajer, based on his research on environmental politics, beliefs are fluid, rather than fixed; language plays an important role in beliefs and values change. 'New discourses may alter existing cognitive commitments and thus influence the values and beliefs of actors' (Hajer, 1995: 71). Hence, coalitions do not have definite boundaries; coalitions do not unite on the basis of the physical roles that they play in policy process, i.e. the roles of advocacy and brokers are sometimes intertwined (Hajer, 1995: 71). Hajer also argues that Sabatier overstated a 'rationalist idea about cognitive change' (Hajer, 1995: 71). Hajer further 'operationalises the idea that discourse is constitutive of the realities of environmental politics' (Hajer, 1995: 72).

Yanow's use of 'interpretive communities' is similar to Hajer's 'discourse coalition' (Yanow, 2000). In Yanow's analysis, the term 'interpretive communities' accommodates three characteristics. First of all, interpretive communities share thoughts, speech, practices and their meanings. Second, such communities may be fluid, changing from issue to issue. Third, there are at least three communities of meanings: policymakers, implementing agency personnel, and affected citizens or clients (Yanow, 2000).

Wilson (2004) creates another term for pointing out who is doing the interpretation of the phenomenon of ICT diffusion. He uses 'ideological leadership' to identify the similar work that interpretive communities do. In his definition, based on the empirical studies he undertook in developing countries, 'ideological leadership frames important ICT concepts. For example, if ICT is defined as an economic issue, it will mobilise one constituency, creating a particular kind of agenda. If ICT is defined as a matter of national sovereignty under assault, other constituencies and institutions are mobilised' (Wilson, 2004: 95). He further singles out those who are playing the role of issue definition in developing countries; they are 'government officials and senior people in the research and scientific communities' (Wilson, 2004: 95).

In addition to the above theories, elitist and technocratic models may contribute to our ability to analyse actors in the digital divide policy-making process. In the Chinese case, this elitist model will be considered in Chapter 5 alongside the political context. From the insight of the elitist model, it 'holds that power is concentrated in the hands of a few groups and individuals' (Parsons, 1995: 248). Here, the elitist model points out the composition of policy-makers by a few groups; this may (particularly in China's case) prove insightful when it comes to empirical analysis. As for the technocratic model, it

emphasises that the role of knowledge is dominant and that 'decision making would be influenced by those who possessed the technical knowledge vital to understanding the modern world' (Parsons, 1995: 267). This tendency may also be revealed in digital divide policy-making.

The theorists mentioned above provide a wide range of roles for participants in the policy-making process. Sabatier described the conceptions of participants from an elitist perspective, which is proper for mapping the policy participants in some situations. Sabatier's conception may be relevant in analysing digital divide policy in Taiwan and China for two reasons. On the one hand, digital divide policy is still an emerging issue circulated around the administrative staff and in academia. On the other hand, digital divide policy related knowledge is to a large extent restricted to technological, instead of social aspects. Hajer acknowledges that physical meetings or coalition-creating in terms of participants' identities are not necessary for coalition-building. Yanow extends and deepens the concept of participants in traditional policy research and regards them as an interpretive community, which increases the flexibility for practical analysis. This fits with the tendency in the information society for information flow and exchange to take place without physical space for policy participants. I will take the insights of these scholars' perspectives to analyse the actors in the digital divide for this thesis.

2.5.4 Policy Outcomes

In this section, I discuss some concerns as to the policy-field demarcation and policy-making and implementation based on the discussion in the previous section. I draw on the concept of 'convergence' discussed by Bennett (1991a, 1991b, 1992, and 1997) (see Figure 2.1) to further my consideration on digital divide policy outcomes in China and Taiwan.

In the policy research field, policy convergence has been a crucial topic within comparative public policy. Policy convergence argues that 'the convergence of public policy can occur through a number of distinct processes' (Bennett, 1991b: 217). Working on the convergence of data protection, Bennett summarises five explanations for convergence, which are technological determinism; the emulation of the pioneers in the field; the close interaction of a transnational elite of experts; the harmonisation efforts of international organisations; and penetration, where states are forced to make their policies conform to those of others' (Bennett, 1992: 116-117). As Bennett stated, this is an open framework for specifying alternative propositions, which operate at

different levels of analysis. Therefore, these explanations may be appropriated for analysis of the convergence in digital divide policy.

Framework	Cause	Condition
Emulation	A collective insecurity under conditions of policy innovation; the diffusion of knowledge about problems and solutions	The sharing of knowledge
Elite networking	The desire to share expertise	The sharing of knowledge
Harmonization	Interdependence and the perceived need to co-operate	An international regime
Penetration	An expression of power	The recognition of externalities

Figure 2.1 Four Frameworks of Policy Convergence (Source: Bennett, 1991: 229; complied by the author)

In Bennett's work, the emergence of computers resulted in the data protection movement due to two further conditions. 'First, we must be able to identify the intrinsic properties of *this* technology that would force policy makers to treat the dangers in a similar manner. Second, these qualities must be recognised by the key policy makers in different states. In other words, it is not enough that the technology is the same; the perception of the technology must be also the same' (Bennett, 1992: 118, emphasis in original).

With regard to the 'technological determinism', Bennett (1992: 122) suggests that 'we should qualify the word "deterministic". While the technology frames the contexts of policy choice, authoritative decisions are made only by political actors who undoubtedly develop a variety of interesting views about that technology' (ibid.). He concludes that 'the argument for technological determinism excludes *politics*' (Bennett, 1992: 123).

To sum up, Bennett's work is helpful for comparing digital divide policy-making in China and in Taiwan within a wider international context. As mentioned earlier, if the context does matter, particularly the international context in terms of globalising digital divide discourses and initiatives of the international organisations, then a convergence of digital divide policy-making in both countries will emerge. Bennett's four frameworks of policy convergence will provide insights for the analysis of convergence of the digital divide policy in this thesis.

2.6 Conclusion

This section combines the abovementioned four elements into a complete analytical framework (see Figure 2.2). It starts from the main concern of this thesis: How developing countries interpret the digital divide and make digital divide policies within international and national contexts? Following this main concern, as well as the observation from the gap in the existing literature that relatively less attention is paid on developing countries than developed countries, two developing countries—China and Taiwan—are selected for this thesis. The main research questions become: How the interpretation of the digital divide has been transferred from international context to developing countries, such as China and Taiwan; How the broader social and economic context in a specific country, in this case China and Taiwan, has shaped digital divide policy; How the issue of the digital divide has been framed within China's and Taiwan's contexts and the policy is formulated; Which ministries/institutes are involved; How these have been translated in implementation; What are similarities and dissimilarities between digital divide policy-making in China and in Taiwan?

The first element 'context' includes two levels: international and national. The international context refers to global digital divide discourses carried out and framed by advanced countries, e.g. US and EU, and international organisations. The national contexts refer to political, economic and social aspects in China and in Taiwan respectively frame the digital divide discourses and relevant policy.

When the contexts have been set up and analysed, the next step is to summarise and analyse the policy discourses in terms of storylines that are composed of detailed operationalisation for framing the digital divide, e.g. social learning, claim-making, myth and boundaries that are mentioned in section 2.5.2. Then, I will investigate the actors that participate in framing the digital divide and making digital divide policy I discussed in section 2.5.3. From the analysis, I hope to show how the digital divide is interpreted as well as which institutions are recruited to participate in policy making. Finally, I will conduct a comparison to look at the similarities and dissimilarities of digital divide policy-making in China and Taiwan.

This analytical framework will help to answer the questions I raised in Chapter 1, and allow for an analysis that is intended to connect context and policymaking and implementation by means of an interpretive approach. In the next chapter, I will develop a methodology through which this analytical framework can be implemented.

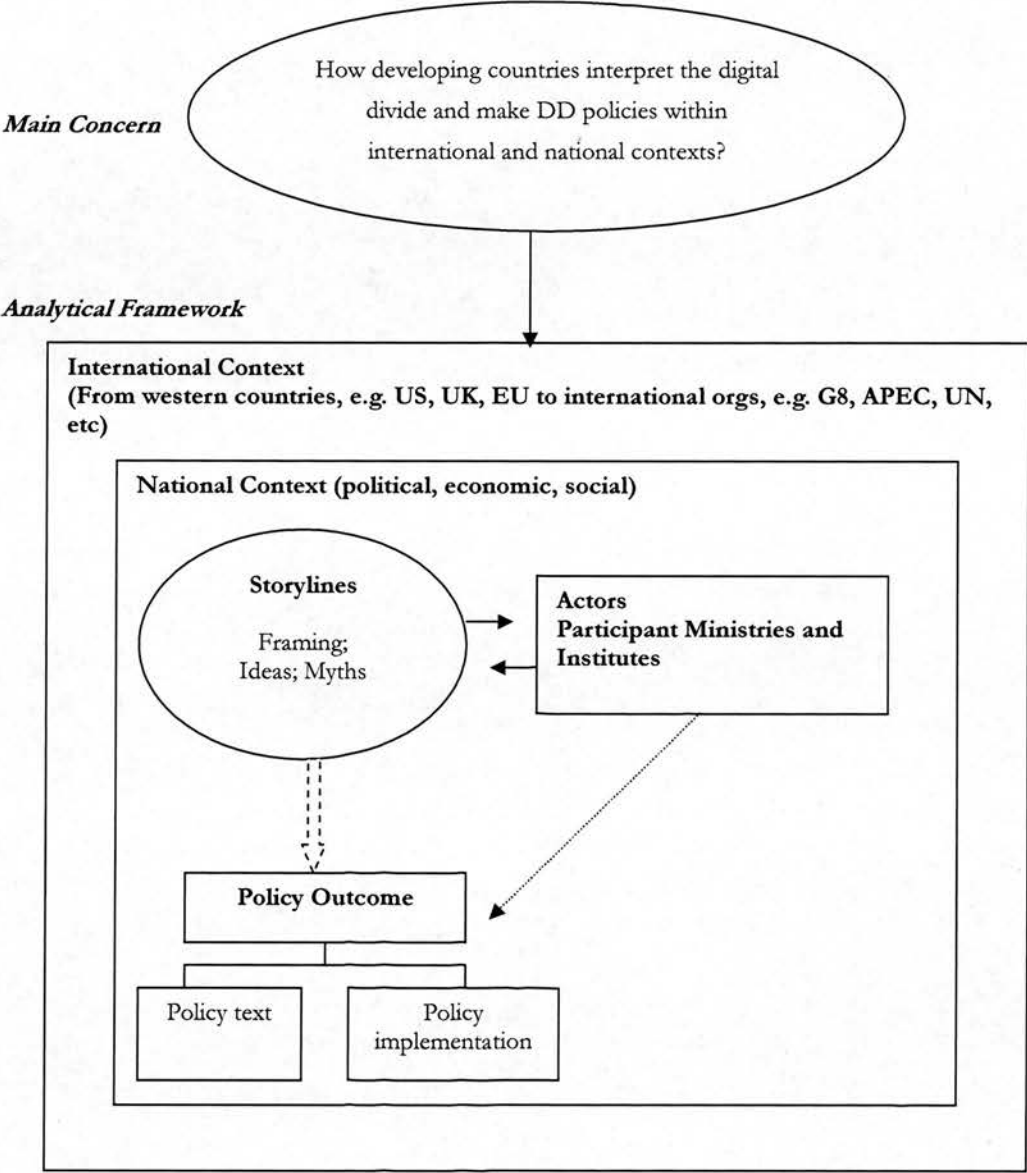


Figure 2.2 My Analytical Framework

Chapter 3

Methodology

This chapter deals with the methodology of this research. A comparative case study is chosen to be the research framework. Two settings—China and Taiwan—are selected for the cases. The detailed methodology will be elaborated below. Following an outline of the data collection methods, I provide the analytical scheme of this study.

The analytical framework described in the previous chapter has directly influenced the research design outlined in this chapter. In order to understand, from an interpretive approach, the three main sections in Figure 2.2 in the last part of Chapter 2—what are the international and national contexts (*Context*), how the issue of digital divide is defined (by *Actors*) as a social problem within international and national contexts (*Discourses/Storylines*), and what the policy is (*Policy Outcome*)—the data collection methods adopted below are inevitably qualitative, rather than quantitative.

3.1 Entering the Field

This section provides an understanding of my preparation for the research journey in China and in Taiwan. Section 3.1.1 introduces my three phases of fieldwork in China and in Taiwan respectively. Section 3.1.2 describes how I looked for the data that would be useful before I began my fieldwork.

3.1.1 Three Phases of Fieldwork

I conducted three phases of fieldwork in China and in Taiwan respectively during the research period of 2004 to 2006. Each phase of fieldwork lasted around one month. It was necessary to conduct three phases of fieldwork in order to deal with the problems of accessing interviewees in policy-making, which is particularly challenging in China. Regarding the problem of accessibility, I provide a detailed account of my own experience in the reflection section of this chapter.

In the case of China, my first phase of fieldwork was conducted in April 2005. The objective was to have a comprehensive understanding of the Chinese context, including its political and economic development, and special attention is paid to the realisation of ICT development and the conception of the digital divide. I spent three weeks in the

newspaper archive of the National Library of China (Beijing) compiling the historical events and policies pertinent to ICT development and the digital divide. Additionally, some of the interviews for this research were conducted during the first phase of fieldwork. However, I encountered unanticipated difficulties in setting up and conducting interviews with Chinese respondents, especially policy-makers (see section 3.5).

Learning from the difficulties suffered during the first phase of fieldwork, I conducted the second research trip half a year later in January 2006 with the identity of Visiting Scholar in the Chinese Academy of Social Sciences (CASS) and the third research trip in September 2006 as Visiting Student in the Chinese Academy of Sciences (CAS). This new official academic identity enabled me to make appointments with my target interviewees in the second and third phases of fieldwork. I also made efforts to understand the 'ritual rules' of communicating with Chinese people, and discussed the structure and wordings of my interview questions with my supervisors beforehand. In order not to irritate my interviewees in China, we matched the questions to interviewees' backgrounds word for word to create a polite and comfortable scenario for interviewees. This meant that the second and third phases of fieldwork went more smoothly than the first one. Detailed accounts of the experiences of fieldwork as well as self-reflection will be presented in section 3.5.

With regard to the Taiwanese case, I also conducted three phases of fieldwork to collect data and conduct interviews, which were in April 2004, March 2005, and November 2005, respectively. I collected relevant documents, e.g. newspapers and policy texts, and started to make personal contacts with my target interviewees. In contrast to the challenges in China, I had less difficulty in accessing my target interviewees in Taiwan. This is because I have already built some networks in Taiwan before my embarking on my research. I will provide detailed accounts in section 3.3.2.3.

3.1.2 Looking for a Needle in a Haystack

I was entering the field with an image of how the digital divide and digital divide policies would be in China on the basis of the literature I reviewed. However, as soon as I arrived in Beijing, I was forced to face the reality that the term 'digital divide' is far removed from people's daily life, even for my friends who are in academic fields. In China, the term 'digital divide' is just in its infancy, and there is no policy title which directly focuses on bridging the digital divide. In contrast, as mentioned in Chapter 1,

the Taiwanese government has a very clear-cut policy entitled 'bridging the digital divide', and a corresponding task force NICI has been launched to be in charge of the policy-making and implementation, which saved me much time in outlining the policy map.

Thus, in order to sketch the policy I wanted to research, thoroughly examining the newspapers page by page is necessary. As I mentioned earlier, I spent three weeks in the National Library of China in Beijing to look for any possible information related to my topic, i.e. the debate about the digital divide, relevant policy texts and discussion, and actions taken to bridge the digital divide. The reason to do so was not only because this was a safe way to have a comprehensive understanding of the digital divide and policies, but because this was the most 'efficient' means to map the policy area, participant institutes and storylines of bridging the digital divide for my research. This searching process was time-consuming, but a necessity. The process of data collection served as the process of building up the policy map for this research.

This section reflects my research journey of fieldwork. In the first place, I describe the feeling of being a junior Taiwanese researcher in China and the difficulties I encountered. This is followed by the way how I overcame these difficulties.

3.2 Comparative Studies

I have discussed the empirical concerns of comparative studies in Chapter 1, along with the selection of nations and policies used for analysis. In this chapter, I am dealing with theoretical concerns about doing comparative studies, which is conflated in my research design.

'Comparative studies' is a popular approach in the research fields of politics and social policy, and the aim of doing comparative studies is as follows: having a better understanding of the domestic policy environment, learning lessons from foreign countries, and advancing the depth and width of theoretical concerns (Jones, 1985: 4). In this research, comparison is employed to investigate the international and national contexts, the process of digital divide policy-making in China and Taiwan, and refer to the theoretical concerns I discussed in Chapter 2.

What is to be compared is the core concern in comparative studies. In this research, 'context' is to be compared in the first place. I will compare the models of digital divide policy-making in China and Taiwan within international and national contexts. Secondly,

the interpretations of the digital divide in China and Taiwan are compared. As far as the digital divide is concerned, the definitions of digital divides vary in different time-periods within/and between individual countries. When the term 'digital divide' first appeared in the official documents in the US, as mentioned in Chapter 1, it was referred to the technical/equipment gap between groups in the US. As time went by, the definition has altered to fit the situation in other settings. The interpretation of 'digital divide' is an objective for investigation in this research. The detailed systematic discussion of this issue is provided in Chapter 1 (the history of the term 'digital divide' in the US) and 4 (the international contexts for fostering, and subsequent frameworks in framing this term).

Thirdly, ministries/institutes involved in digital divide policy are compared. I will investigate who are involved in digital divide policy-making by referring to Yanow's three categories (Yanow, 2000) that are mentioned in Chapter 2, and show if China and Taiwan has different categories of participants in digital divide policy-making. Fourthly, policy outcomes are compared. As I mentioned earlier, if the international context matters, a policy convergence will emerge. Furthermore, since China's and Taiwan's domestic contexts differ, it may be expected that there is divergence between their digital divide policy-making.

3.3 Methodological Implications and Limitations of Hajer's Approach

Discourse analysis is often adopted as a method for conducting interpretive policy research. The *theoretical* definition of 'discourse,' however, varies between different researchers and their audiences, 'from strictly linguistic approaches that focus on communications to approaches that embrace ideas and actions as integral to discourse' (Sharp and Richardson, 2001: 193). Hajer's discourse analysis, following a Foucauldian definition, defines 'discourse' in a broader sense, including textual materials and practice (Sharp and Richardson, 2001: 196). For example, in his analysis of environmental modernisation with discourse analysis, he not only analyses textual/spoken materials, but also the practice itself (policy making influenced by how the policy problem is framed). This offers my research the first methodological implication relevant for investigating both discursive aspects (interpretation of the digital divide) and practice (digital divide policy) in the course of policy-making: 'tracing initial problem construction through to the development of (apparent) "solutions"' (Sharp and Richardson, 2001: 197). For example, I not only investigate the framings of the digital divide, but also extend my research to the events/programmes on bringing the digital

divide. Additionally, this approach directs me to a triangulation method of data collection (discussed in section 3.3) instead of to a single source of data for analysis.

A related concern in conducting discourse analysis is that the concept 'discourse' is either sometimes too abstract or is not given an *analytical* definition. Hajer's discourse theory makes an effort to solve this confusion. He proposes 'storylines' as a middle-range concept to take the context into consideration for analysing the construction of an issue in question. A storyline, in his definition, is 'a generative sort of narrative that allows actors to draw upon various discursive categories to give meaning to specific physical or social phenomena' (1995: 56). The innovation of this concept lies in its operational definition, which is helpful in connecting context and discourses. It provides an operational definition of what a storyline is; in his words it is 'a discourse-analytical approach that is both theoretically sophisticated and practically operationable' (Hajer, 1995: 52). This offers my research the second methodological implication for taking the context into consideration when dealing with discourses on bridging the digital divide.

Discourse coalition is another promising analytical concept in Hajer's approach. In his research (1995), he argues that the boundary between coalitions is fluid; the establishment of one coalition is based on the discourses that unite them. This concept further enhances the role of discourse in policy making, and it is useful for the research to categorise the coalitions in terms of different discourses.

However, it is worth noting that any theory has certain limitations in practice. For example, while an analytical concept is being adopted in a different topic or context from that wherein the concept is being developed, there may be a gap between the ideal theory and its application. Hajer develops the concepts of 'storyline' and 'discourse coalition' on the topic of environmental modernisation in the context of western countries. This raises two practical issues for the current study. One concerns the topic in question while the other is the context wherein the topic is embedded. Hajer's research focuses on a debatable topic (e.g. ecological modernisation) in open societies (e.g. UK and EU). In applying his concepts in my case studies, a couple of concerns begin to emerge. First of all, in a less open society, e.g. China, policy debates may not fully emerge during the course of policymaking and discourse coalitions may not be able to form or may be invisible to the researcher insofar as they take place in essentially closed circles (for example discussions within the Chinese Communist Party). Additionally, the issue of the digital divide has been a relatively marginal policy debate,

especially in China and Taiwan. For example, in the case of Taiwan, it provides only modest opportunity to observe the operation of discourse coalitions.

I bear these concerns in mind throughout the course of my analysis. The middle-range concept 'storylines' is useful in bridging the wider contexts with policy-making and implementation. I will include more discussion on the difficulties/limitations in applying Hajer's concepts for analysis in Chapter 10. Drawing on Hajer's discourse analysis theory, I take a series of practical stages for data analysis and justify how material from science and technology studies (discussed in Chapter 2) usefully combines with interpretive policy research literature (section 3.5).

3.4 Data Collection—Triangulation

Because this research encompasses the policy text itself, the context of policy making as a whole, and the participant ministries and institutes in the course of policymaking, a single data collection method does not suffice to answer all my research questions. Thus, a triangulation of methods is adopted in this research for access to data and answering the research questions proposed in Chapter 1. The data collected in this research are mainly from interviews and documents.

Multi-disciplinary research is becoming the mainstream trend in social science studies, both in quantitative and qualitative research. Triangulation means to design a study that combines different techniques in order to explore one set of research questions. The triangulation method stems from the idea that data are obtained from a wide range of different and multiple sources, using a variety of methods, investigators or theories' (Arksey & Knight, 1999: 21).

Triangulation can be applied both in quantitative and qualitative research. For the former, triangulation serves two main purposes: 'confirmation' (Denzin, 1989) and 'completeness' (Jick, 1983). When the approach is used for the purpose of confirmation, the individual strengths, weaknesses and biases of the various methods must, first, be known and, secondly, applied in such a way that they counterbalance each other' (Arksey & Knight, 1999: 21). While for the latter, 'the completeness of triangulation is also relevant to work that adopts an explicitly qualitative stance, where investigators tend to dislike structured approaches and instead welcome any information that adds depth and breadth of understanding' (Arksey & Knight, 1999: 22).

Denzin (1989) introduced the notion of ‘multiple triangulation’, referring to a typology of strategies that can be combined in one investigation: methodological triangulation; data triangulation; investigator triangulation; and theoretical triangulation (Arksey & Knight, 1999: 22). Drawing on Denzin’s classifications and definitions of each category, this research will adopt a methodological triangulation, applying two methods (interviews and documentary analysis) to complete the investigation. The adoption of between-method triangulation in this research may contribute to the completeness of data collection and the depth of interpretation.

3.4.1. Documents and Archives

For a better understanding of the framing of the digital divide and relevant policy, the first step I adopted was searching a news archive created by the main news agencies in my two case countries. By so doing, I built up the fabric of the contexts, policy, and participant ministries and institutes in the topic I researched, which offered me a clear outline as well as providing me the information about which key individuals to interview. This preliminary background understanding allowed me to present myself as knowledgeable to my interviewees and enabled me to ask ‘insider’ or ‘professional’ questions.

Technically, ‘documents are things that we can read and which are related to some aspect of the social world’ (Macdonald, 2001). Following this definition, in this study, documents are public records, such as policy texts and official reports. This provides me the entry point to conduct preliminary analysis. Along with the interviews, all possible documents related to digital divide discourses and digital divide policies were the data being collected for this research. Documents collected for analysis in this research consist of newspaper interviews, public discourses presented in the mass media (newspapers in particular, including straight news coverage and editorials), primary documents (policy texts), secondary literature and conference materials. Each source will be explained below.

3.4.1.1 Newspaper Interviews

The newspaper interviews were seen as a complementary tool for eliciting policy-makers’ ideas, particularly when some influential policy-makers have passed away or cannot be easily contacted for personal interviews. Additionally, digital divide policies are still ongoing both in China and in Taiwan, however some participants may have

already left their previous positions; therefore newspaper interviews can be useful historical sources in this research.

One concern that needs to be addressed in this research is the 'completeness' and 'distortion' or 'biases' of the newspaper interviews, which means whether the media text represents the 'truth'. This is a heated and ongoing subject and has accumulated a great volume of literature in mass communication studies, which are concerned whether the media 'represent' or 'reproduce' the 'truth'²³. This issue did come cross my mind before I embarked on collecting data from newspapers. However, the debate itself is beyond the scope of this thesis, and not really a matter for this research. I provide two accounts to explain why I am neither following this debate nor justifying my choice of using newspaper coverage in discussing the 'truth' of media sources for this study.

First of all, in principle, there exist differences between media report in China and Taiwan. In China something will appear in the media if the government wants it to be there; Taiwan will exhibit political influence over content, but there are competing sources. Either in the theory or the practice of journalism, controversy is news worthiness; therefore newspaper discourse has a different status and significance. However, after I finished browsing newspaper sources, I surprisingly found that the digital divide policy is a little-debated issue in public. Secondly, the interview transcripts are completely printed and published in the newspapers, particularly in an authoritarian country, China. This indicates that the interviewer (journalist), the editor, and the media agency did not conduct interpretation before the interview transcript was imprinted.

Another source of skepticism about the reliability of mass coverage may stem from the different political positions the press agencies hold, and also from other reasons, such as editorial policy. A great volume of literature on research in mass communication and journalism has focused on this issue²⁴. After going through the print media coverage, I found that the newspapers of different political angles presented the data concerning the digital divide in a similar way. Therefore, I will skip the oft-discussed questions mentioned above, and go into the criteria of selection and types of coverage I searched in this research.

In terms of the time-period, the collected newspaper interviews will be those published

²³ When using 'media representation' and 'truth' as keywords in the search engine 'google scholar', there comes out more than 13 thousands results. Access on 24/11/07.

²⁴ For example, Breed and White are two of the classical books on this topic. For more details, see Breed, W., 1950 and White, D. M., 1950.

from 1995 to 2006. For Taiwan, two main national daily newspapers were chosen for data collections—*UDN news* and *Chinatimes online*. For China, two online versions are chosen—*China Daily*, and *People's Daily*. Additionally, because the news pertinent to the issue of the digital divide are mostly covered in technology-related newspapers, I spent three weeks in the National Library of China in Beijing during my first research trip manually searching the newspaper *Technology Daily* (paper version).

3.4.1.2 Primary Documents (including national and global)

The primary documents used in this research include published policy texts, survey reports, academic research, and the declarations of international organisations and policy texts of China and Taiwan. The detailed explanations are provided below.

● Published policy texts

In order to conduct discourse analysis on policy research, policy texts undoubtedly are the main resource for analysis. This primarily refers to the texts of relevant digital divide policy in China and Taiwan.

For China, the relevant policy texts collected for analysis in this research include:

--*Five Year Plans*

--*Go West (Explore and Develop the Western China)*

--*Cun Cun Tong & Cun Cun Tong Dianhua (Get Every Village Online)*

--*E-School*

--*The Construction of Socialist New Villages*

For Taiwan, the relevant policy texts collected for analysis in this research include:

--*E-Taiwan, in Challenge 2008: The Six Year National Development Plan.*

● Survey reports

The surveys used as data in this research are not taken as a proof of the 'true' situation of the digital divide in the two cases, but as references and research objects for analyzing how these reports help to construct definitions of the digital divide. Thus, the oft-mentioned deficiencies and criticisms of survey data, in particular of China (e.g. Giese, 2003), are not a concern of this study.

In this research, survey reports collected for analysis include: 1) CNNIC Internet Survey Reports (1997-2007) in China, and 2) Digital Divide Reports (2002-2006) in Taiwan.

Although there are many different kinds of Internet surveys conducted by private survey companies, here I only collect those that provide references in the course of policy-making, which are identified by my interviewees.

Researchers themselves, including administrative researchers (e.g. CNNIC of China) and academic researchers (e.g. researchers conducted digital divide reports in Taiwan) may not think their research findings will have impacts on the definitions of an issue and policy-making, however, it depends on the 'impact' they conceive of, and whether the impact is defined directly or indirectly. In most cases, the 'impacts' are incremental or diffused, rather than linear or systematic. In the interviews I conducted, the interviewees in policymaking did mention that they benefited from academic research to some extent, including the ideas of the digital divide in general and the definitions of the digital divide in particular. This too resonates with what Clarke (2001) called the 'conceptual' utilisation of social research²⁵, and fitted into the 'enlightenment model' he proposed.²⁶ Thus, academic research concerning the digital divide has also formed a source of data in my research.

- The declarations of international organisations

Interpretive policy research emphasises the importance of contexts, be external or internal contexts. While embarking on literature review, I realised that foreign countries and international/regional organisations had great impacts on the policy-making of individual countries, in particular developing ones. After the three phases of fieldwork in Taiwan and in China had been carried out, the accounts of my interviewees proved my concerns correct. Almost every interviewee told me they were highly inspired by foreign countries and regional/international organisations. Thus, the documents from foreign countries and regional/international organisations are included as data in this research. The detailed sources and documents are presented in Chapter 4.

3.4.1.3 Other Sources

²⁵ Clarke (2001) discusses the relationship between social research and policy-making in his article, which distinguishes two types of utilisation—'instrumental' and 'conceptual'. The former indicates that policy-makers did make policy modification based on the findings of specific research studies. Whilst the latter indicates that research influences the way policy-makers view and interpret an issue or a social problem.

²⁶ Clarke (2001) further proposes four models to explain the relationship between research and policy-making. The fourth one, the enlightenment model, explains the research input into policy is indirect, and the 'conceptualisations and generalisations emanating from the social sciences can influence the way in which policy problems are defined and solutions identified'.

Apart from that was listed above, other documents include: other scholars' published papers and books are included and used as reference data; conference materials such as the power points displayed for internal meetings in the government; the proposals for applying the digital divide related grant, etc.

3.4.2 Personal Interviews

This subsection provides the reason of conducting interviews, how I recruited my interviewees, and the number of interviews I have conducted in this research.

3.4.2.1 The Reason for Conducting Interviews

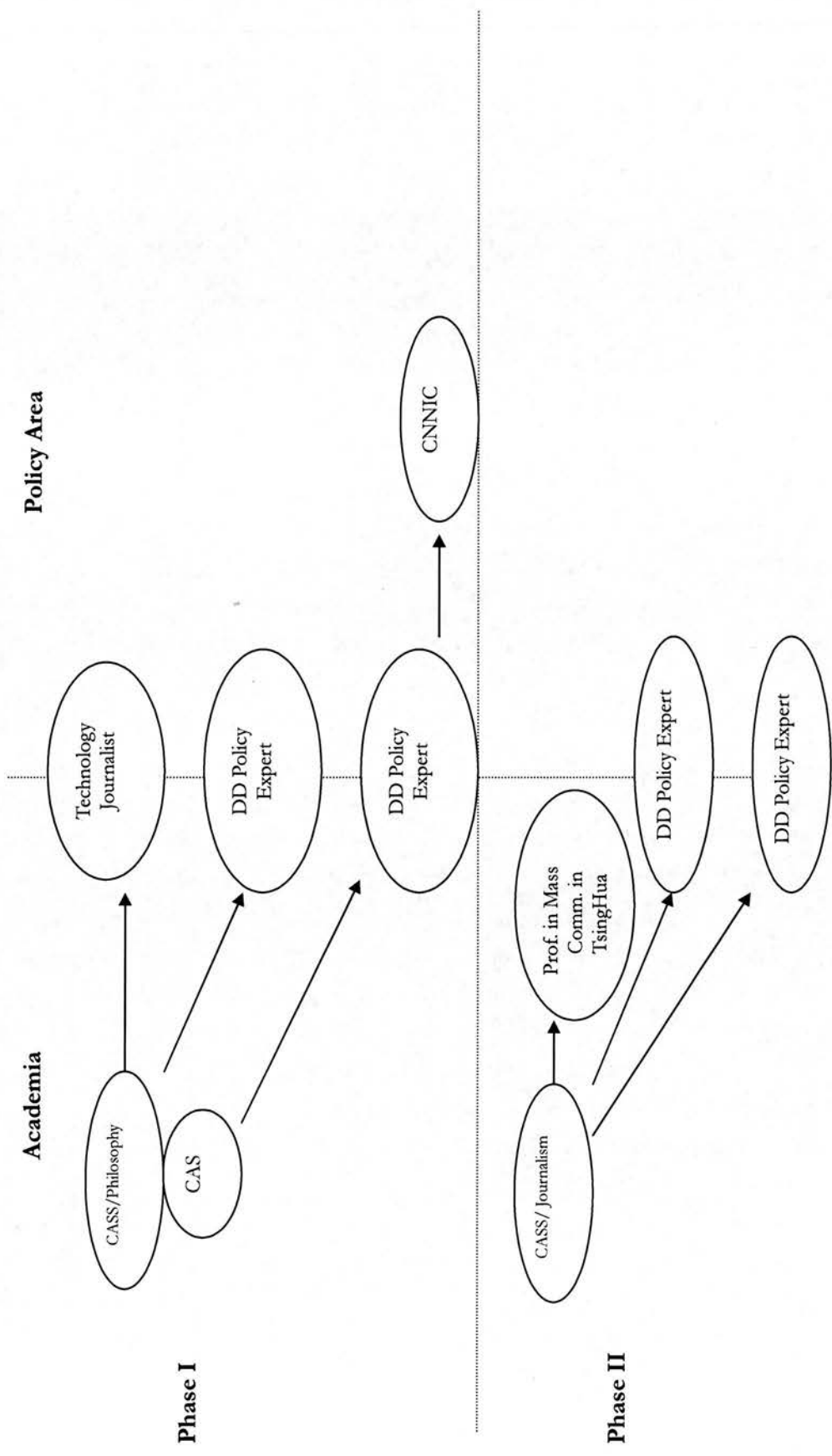
Five reasons are considered for conducting interviews in this research. First of all, to avoid the opportunistic sample that has been selected in advance in the written text (Swaffield, 1998: 205), personal interviews may rebuild the comprehensive process of policy-making. Secondly, for answering the questions raised in Chapter 1 to see how the concept of the digital divide has been perceived, interpreted, and consequently appropriated into policy texts and policy implementation, interviews are the most appropriate method. Thirdly, basing the study on documentary studies via discourse analysis often attract the critique of analysts' subjectivism. Fourthly, interviews can provide the researcher the first-hand materials that other researchers do not have. In this research, interviews give me access to procedural details as well as to controversies and inside stories that published documents could not reveal. Finally, when conducting interpretive policy research, it 'cannot be restricted to policy language or ideas only as understood and intended by their authors. Interpretive policy analysis explores the contrasts between policy meanings as intended by policy-makers—"authored" text—and the possibly variant and even incommensurable meanings—"constructed" text—made of them by other policy-relevant groups' (Yanow, 2000: 9).

3.4.2.2 The Recruitment of Interviewees

I searched the newspapers (aforementioned in section 3.4.1.1) in order to locate potential interviewees for this research (during the period of the earlier 1990s to 2005). I identified them as influential political actors who were competing to provide storylines around the digital divide. The recruitment of interviewees also comes from employing a snowball method, i.e. from referring to the theoretical literature on actors in policy-making (see Chapter 2) and from referring to the documents that explicitly

mention actors/ministries/institutes involved in digital divide policy making in China and Taiwan. The interviewees have contributed to defining the digital divide as well as to locating their direct or indirect involvement in the policy-making process. I adopt a relatively abstract definition of 'contribution' and 'involvement' in this study, for the discourses pertinent to the digital divide, whether from policy-makers, policy think-tanks, media text, etc., have to some extent influences on the digital divide policy-making. Thus, the interviewees in this study included the researchers from academic fields, the survey institutions, and the administrative officers from Taiwanese and Chinese central governments. The interviewees were recruited through the snowball method through which I asked 'people who have already been interviewed to identify other people they know who fit the selection criteria' (Ritchie, Lewis, and Elam, 2003: 94).

Figure 3.1 and 3.2 display the snowballing process of locating the interviewees in China and in Taiwan respectively. In order to protect the identity of my interviewees, in these two figures I merely put the institutions my interviewees are situated in, rather than the positions they hold. The vertical axis separates my three phases of fieldwork, and the horizontal axis divides into two fields, academia and policy areas. The direction of the arrow indicates the next interviewee that the previous one recommended and introduced to me. Some of the interviewees in China hold dual positions as a researcher in academia and a policy participant in semi-governmental institutions. Hence, they are located between the academia and policy fields in the figure. In contrast, in the case of Taiwan, only the researchers who are delegated to conduct the digital divide surveys straddle the academic and policy fields because they conduct the surveys for the government, which is used for references when the governments are making digital divide policy.



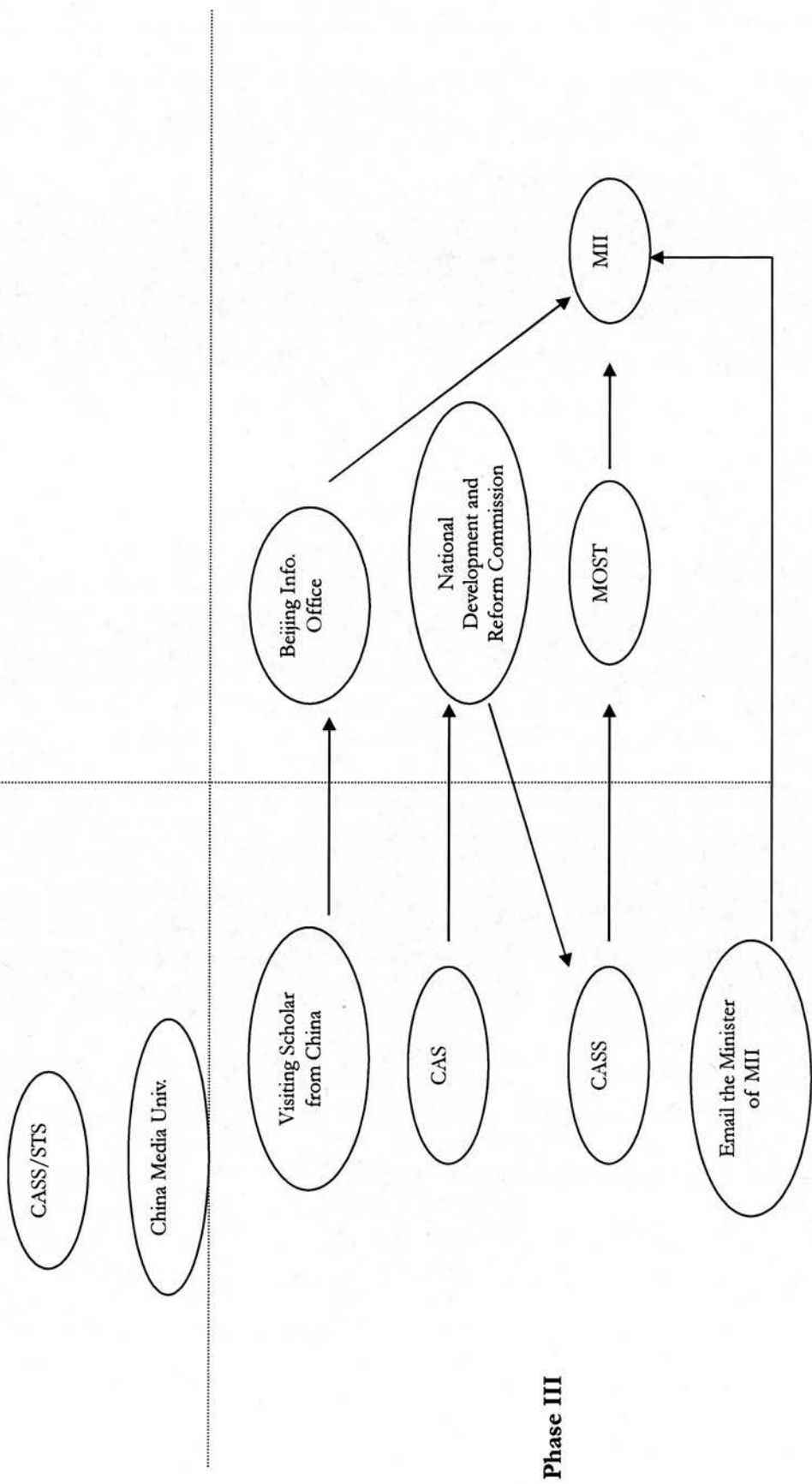


Figure 3.1 Snowballing Interviewees in China

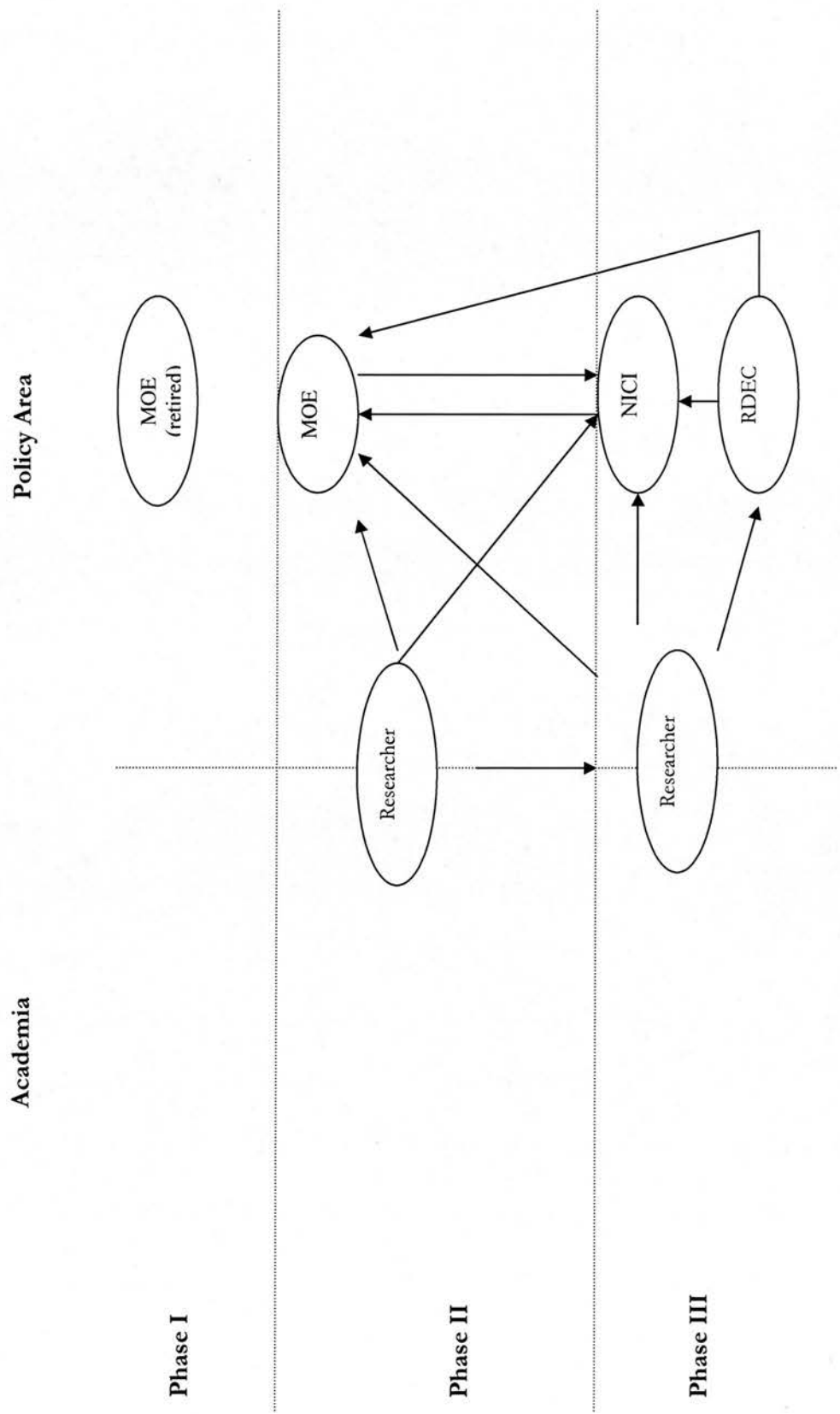


Figure 3.2 Snowballing Interviewees in Taiwan

3.4.2.3 Limitations of the Interviewee Recruitment Process

The consequences of the process of recruiting my interviewees generate two main concerns. First of all, particularly in the case of the People's Republic of China, the interviewees are primarily restricted to individuals within key government ministries and their specialist advisers. This may create the impression that people with positions in CCP have been overlooked by the research design. Secondly, people outside the government seem to be ignored in this research.

In response to the first concern, there is a need to take a comprehensive understanding of China's national political context into consideration. As indicated by the scholarly literature, the (CCP) structure always exercises ultimate authority over its government counterpart (Lieberthal, 2004: 172) even though CCP and the government have roughly the same hierarchical organization. The CCP, via its Standing Committee of Politburo, is the ultimate decision-maker (Sun, 2003: 58). The CCP, to a very large extent, holds the power to decide policy issues and to appoint the leaders to public sector bodies (Lieberthal, 2004: 234). The State Council, which represents the central government, is the highest executive office of state power and directs three-dozen ministries and commissions (Sun, 2003: 58). In the division of labour among ministries, the industrial ministries play the role of formulating and carrying out specific policies in relation to informatisation.

An important characteristic of the Chinese political system is the double-relationship of government officials who are also members of CCP (Lieberthal, 2004). In China, most officials in government are holding a double position because they are required to be a member of the Chinese Communist Party (CCP). Thus, the influence of CCP pervades the responses of government officials. For example, the president of the CCP holds the position as the president of the state; the minister of MII also holds the position as the 'secretary of the Party Leadership Group' (*dang zu shu ji*, 黨組書記). The CCP therefore exercises its authority through this interesting double-relationship. The principle of CCP leadership was thus accomplished through the overlapping of positions (Kokubun, 1998: 72). This double-relationship of government officials provides an explanation for why actors from the party are not excluded from the selection of interviewees, but the influence of the party pervades the government.

Regarding the second concern, there is an emerging debate surrounding the relationship between state and society in current scholarly literature on Chinese politics. Some

scholars seek to clarify and redefine the concept 'civil society' (White, *et al.*, 1996) so as to show that there is civil society existing in China. They emphasise that the economic reform in 1978 provides a basis for civil society in China (Gold, 1998). White *et al.* propose a distinction between political and sociological conceptions of 'civil society' (1996: 3). In their clarification, a political conception of 'civil society', based on the principles of citizenship, civil rights, representation, and the rule of law, makes it distinguishable from the standard conception of a liberal democratic polity (White, *et al.*, 1996: 4). In this sense, the political conception may undergo difficulties in investigating the emergence of 'civil society' in China. Thus, they turn to sociological conceptions of 'civil society'. The sociological conception is that of an intermediate associational realm situated between state and society, populated by social organizations which are separate and independent to some extent from the state (White, *et al.*, 1996: 3). They argue that this definition can better investigate the emergence of 'civil society' in China, and may contribute to an understanding of the transition to a new political order.

Indeed, the scholarly literature on 'civil society' provides a more complete picture of Chinese politics, and gives me clues concerning potentially wider influences in policy-making in China. However, in the above-mentioned literature, there are hardly any empirical findings about the contribution of 'civil society' to policy-making. Notwithstanding, I sought voices from outside the government and bore the scholarly literature on 'civil society' in mind when recruiting interviewees. I have tried to expand the range of potential actors, for example, to include academic researchers and I have sought to recruit them in the list of interviewees. However, I had to confront practical difficulties during my fieldwork. The limited number/range of interviews that I was able to achieve reflects the practical difficulties in recruiting interviewees, especially under-represented groups, during my fieldwork. This limitation will be discussed again in the conclusion.

3.4.2.4 The Issue of Accessibility

There are certain methods of accessing my interviews that take into account the different cultural dimensions of each setting. First of all, as soon as I collected the policy texts I was going to investigate, I would browse the official website in which information about officials in charge of the target policy would be displayed. The other way of getting pertinent information of 'relevant persons' is via reading the archive of news agency, either stored online or in paperwork. Through the news coverage related to the policy I was investigating, I could obtain an understanding of who may be my

target interviewees.

Secondly, locating my target interviewees by means of attending academic seminars or conferences was another efficient and effective method. In Taiwan's case, I attended a conference and presented a paper, and the discussant of my paper was one of the target interviewees I was going to locate. Fortunately, she not only accepted my interview request but also introduced her acquaintances that are in charge of digital divide policy for the government to me. This is the approach of snowballing I adopted in this research.

Thirdly, I developed the interview list via interpersonal relationships, which is the most workable way to get permission from the target interviewees in China, in particular those working for the government or semi-official institutes. Additionally, applying for and taking an official position as a visiting student in Chinese Academy of Sciences (CAS) and Chinese Academy of Social Sciences (CASS) also helped a lot in obtaining interviews with people working in the government. As a visiting student in these two state-sponsored research institutes, I could secure assistance from their researchers and utilise their networks of interpersonal relationships to connect my target interviewees and me. Furthermore, the identity of being a visiting student of these two academic institutions could also legitimate my position by making me a semi-insider of Chinese society. In addition, this helped in making appointments with interviewees due to regular cooperation of CAS and CASS with the government. The second and third strategies for obtaining interviewees present the practice of 'snow-balling'.

In contrast to the challenges on China, I had less difficulty in accessing my target interviewees in Taiwan. Four approaches were adopted to locate and make appointments with my target interviewees. First of all, I utilised my personal contacts that were built when I was a journalist in Taiwan to locate my interviewees. Secondly, I looked for the contacts from the official website of the *e-Taiwan* programme and made phone calls to arrange interviews. Thirdly, several friends working in academia and cooperating with the officials I was looking for introduced me to my target interviewees. Fourthly, attending ICT-related conference also gave me the opportunity to locate my interviewees. Although some policy-makers involved in the digital divide policy are retired or have left their previous official positions in charge of digital divide policy-making and implementation so that I could not conduct face-to-face interviews with them, I sent them my questions and have kept in touch with them via emails.

Fourthly, keeping an eye on national/international conferences that happen to take place in my case country was also a promising way to access my interviewees. I was lucky enough to be informed that the *EU-China Information Society Project Annual Conference*²⁷ would be taking place in Beijing during my fieldwork, so I decided to arrive earlier to say hello to the participants, and exchange name cards with them. This helped me a lot in reaching my target interviewees who hold crucial positions within the government.

Fifthly, in contrast to using snowballing, I used my initiative to find new contacts, making calls and introducing myself to the secretary of my target interviewees. Additionally, with the development of Internet and e-government service, I could also leave my research questions to 'minister's email box', and wait for a reply. As a result, I did get a reply from 'minister's email box', though not from the Minister him/herself; instead, I received a reply from the person who was an expert in the issues I was addressing.

3.4.2.5 Numbers of Interviews

Thirty interviews were conducted with twenty-seven interviewees in this research, twenty in China and eight in Taiwan respectively. Three of the interviewees were interviewed two to three times for follow-up questions based on the outcomes of the first and second phases of fieldwork. In light of the fact that policy research in China is still a sensitive area, the accounts of the policy-related critique or comments made by my interviewees cannot be connected with the interviewees' identities. Additionally, even though policy has become a public topic, and is frequently discussed in the public sphere, administrative officers still have highly conservative attitudes and are not willing to show their identities publicly. As a result, all the interviewees in this research will be anonymously presented.

3.4.2.6 Interview Content

Since the interview is meant to function as a supplementary research tool, the interview theme and interview guides are designed for the purpose of collecting data that cannot otherwise be obtained from written documents. The first interview theme aims to identify the actors involved in specific digital divide policies throughout China and

²⁷ This project is to use innovative ICTs for public and private sector organisations in China. And it is a four-year initiative between the Chinese Government and the European Union and started on 01/07/2005. The one I attended in September 2006 was the second annual conference held in Beijing.

Taiwan; it aims to reveal those potential actors who are not mentioned in written documents. It also helps to recruit a broad range of interviewees. The second interview theme seeks to discover more information about the definition of the digital divide, even though similar information might already be available in the written documents. The third and fourth interview themes usefully supplement the second theme. They search for a more comprehensive interpretation of the digital divide in specific case countries. In addition to the interviews, questions such as ‘what is the social meaning of the Internet?’ may also be answered through documents such as policy texts and through media coverage, publications and public speech, and policy participants, etc. In this step, I hoped to uncover the social implication of ICTs and combine concepts from STS (in particular ‘interpretive flexibility’ from SCOT) and policy research (in particular ‘storylines’ from interpretive policy research). On the one hand, the presentation of different storylines reveals the interpretive flexibility of the Internet in this research. On the other hand, the storylines reveal how the actors make sense of digital divide policy ‘by drawing the terms of discourse available to them’ (Hajer, 1995: 53). In conducting an analysis of storylines, certain contexts will be also taken into consideration (see Chapter 5 and 7). The fifth theme particularly deals with the process of implementation. The sixth theme aims to discover if digital divide policy-making is influenced by western countries or by international organisations that are designed to investigate the impact of international contexts on the national digital divide policy making.

Interview Themes	Interview Guides
1. Actors in policy-making	Who are the participants in policy process? What are their positions in policy-making and implementation?
2. Definition of the DD	What is the definition of digital divide in your mind?
3. Legitimation of bridging the DD	Do you feel it is necessary to bridge the digital divide? If yes, can you provide a reason?
4. Storylines of DD policy	What presumption are digital divide policies based on? How did these presumptions express in the policy making process?
5. Implementation of DD policy	How is the digital divide implemented?
6. Policy learning	Any reference to relevant policies from foreign countries or global/regional organization while making national digital divide policy?

Figure 3.3 Personal Interview Content

3.5 Data Analysis

The interviews and document collection were all conducted in the three phases of my fieldwork. After the first research trip, I had done a preliminary analysis based on the transcripts as well as the documents collected. This preliminary analysis helped me redesign my research questions to focus on central themes for the interviews during the second research trip, as well as correct the errors made in the first phase of fieldwork. The steps of analysis below apply to interview transcripts and documents.

Before entering the stage of analysis, I translated all data collected in Chinese to English. In order not to mistake the meaning in the data, especially the data from China, I have consulted friends in China to clarify the terms about which I am confused, or asked my interviewees to go back to the original source, e.g. the term used in English.

Furthermore, although Mandarin Chinese is the official language for these two settings, the literal usage of key terms in Taiwan and in China is of great difference, e.g. with China using '*shu zi hong gou*' (gulf, huge gap) for the term 'digital divide', and Taiwan using '*shu wei luo cha*' (difference). There are two strategies for dealing with Chinese data. One is translating the data into English before conducting analysis. Therefore, the data for analysis is in English. However, the process of translation might lose or exclude some possible meanings, because doing translation is also a kind of interpretive activity. The other one is analysing the data in Chinese, and then writing the result of the analysis in English. However, if I adopted this method, I would become the only person involved in this research that would be able to read the raw materials and would lose the chance to get feedback from a non-Chinese user before starting analysis, in this research, my first supervisor.

Therefore, in approaching the original implications of the terms used in these two settings, I chose to elucidate the meaning of terms in Chinese first, and then translate them sentence-by-sentence into English. Thus, the data analysis is in English.

Details of each step are explained below. The corresponding data and questions are shown in Figure 3.4.

1. Identifying participant ministries/institutes in policy-making in this research is the first step for the subsequent procedures. Because digital divide policies in Taiwan and

China are spread over several administrative institutions in terms of the roles they play, it is challenging to sketch out all the participants in this study. I adopted two methods to outline the participants. First of all, I browsed the official websites of both governments to identify the participant institutions in terms of their division of labour in making digital divide policies. Secondly, I used the 'snowball' method to extend the lists of participants, which means I asked every previous interviewee to find and contact the next one (see above, Figure 3.1 and 3.2). Finally, the sketch of policy participants was drawn.

As long as the list of participants was being built, the interviews were conducted to answer the research questions.

In addition to interviews, the questions such as 'what is the social meaning of the Internet' may also be answered by the documents, such as policy texts, media coverage, publication and public speech by policy participants, etc. In this step, I hoped to uncover the social implication of ICTs, which combines concepts from STS (in particular 'interpretive flexibility' from SCOT) and policy research (in particular 'storylines' from interpretive policy research). On the one hand, the presentation of different storylines shows that interpretive flexibility of the Internet in this research. On the other hand, the storylines present how the actors make sense of digital divide policy 'by drawing the terms of discourse available to them' (Hajer, 1995: 53). In conducting analysis of storylines, contexts will be also taken into consideration (see Chapter 5 and 7).

2. Following Step 2, and adopting the same procedure, the way in which participants define the social problem before policy making, in this research 'the digital divide' was presented and analysed.

Three detailed analytical steps were taken in steps 2 and 3 in order to search for the storylines. First, after much careful reading and long hours of data analysis, the discourses, (made available by interviewees and documents), related to the questions in step 2 and 3, were represented. Then, the main ideas, concepts and frameworks were transcribed or categorised, and a summary diagram of all participants' views was developed. Finally, the transcripts and documents were reanalysed to map the social meaning of the Internet and the definition of the digital divide.

3. The policy process was understood via an analysis of interviews in this step.

4. In this step, policy texts and implementations are the objects for analysis. The analysis technique is the same as that in step 2 and 3.
5. In this step, I will analyse the similarities and dissimilarities of digital divide policy. I borrow Bennett's idea of 'policy convergence' as discussed earlier in Chapter 2 to investigate the convergence between countries. I also include international and national contexts to analyse the similarities and dissimilarities of digital divide policy between China and Taiwan

Step	Task	Source
1	Identity the participants, and mapping policy network.	Document/Interview
2	Analyse the social implications of ICT.	Document/Interview
3	Analyse the definition of the digital divide—the definition of social problem	Document/Interview (Survey reports, policy texts)
4	Map policy process—the process from rough ideas, policy drafting to policy implementation	Interview/literature review
5	Analyse policy discourse	Document
6	Following step 5, analyse similarities and differences of digital divide policy (its models, causes, etc.)	Document/Interview

Figure 3.4 Steps of Analysis

3.6 Reflections on the Process of Fieldwork

This section reflects my research journey of fieldwork. In the first place, I describe the feeling of being a junior Taiwanese researcher in China and the difficulties I encountered. This is followed by the way how I overcame these difficulties.

3.6.1 Entering the Field as a Familiar Stranger

Below is one extract from the interview in the first phase of fieldwork in China with a journalist who is working in a government-sponsored monthly. I interviewed him because the other interviewee's suggestion that he might have the contacts I need for my research; if he was willing to help, it would be easier for me to locate my interviewees in Beijing. As we met in his office, I introduced myself to him that I am doing a comparative study of digital divide policy-making in China and Taiwan. After my introduction, he replied me that:

If you are keeping on saying that you are doing comparison in *two countries*—China and Taiwan, I would terminate this interview right now. For my understanding, there is only one China. Taiwan, Hong Kong and Macao are all parts of China. (Personal Interview, CH04. April 2005. Emphasis by the interviewee)

Chinese has been another mother tongue for me, in addition to Taiwanese, since I entered kindergarten at the age of six. However, the similar language but different political contexts between Taiwan and China meant that I began the fieldwork with considerable trepidation. I was warned by Chinese colleagues that my ambitions of interviewing central governmental officials in China would prove impossible to fulfill due to multiple reasons—mainly the conservative personalities of governmental officials in China, and my identity as a junior Taiwanese researcher. The extract from my interview transcript presented above completely illustrates my concerns before entering the field.

The difficulties of doing research in China can be viewed in terms of two levels in this thesis. In the first place, for the Chinese officials, accepting a request to be interviewed may be to some extent conflicting with national security. Moreover, policy research in China is not a popular field and policy-making in China is centralised with little openness in most cases, whereby citizens are not encouraged to express their opinions in public.

Due to the conservative attitudes mentioned above, things became more difficult when I first tried to access the officials in Beijing on my own. In addition to the reasons stated above, my Taiwanese identity also meant that I encountered a great deal of difficulty during the first phase of data collection. China and Taiwan have been political rivals in the international political world since 1949, although many Taiwanese businessmen and entrepreneurs travel to China, and the economic connection between these two settings has been very close during the last two decades. According to my experience in the first phase of fieldwork, the way in which an interview proceeded was highly dependent on the wordings I used to introduce myself.

3.6.2 How I Overcame the Difficulties

As I pointed out earlier, to make the fieldwork proceed more smoothly, I sketched the interview questions several times and revised them repeatedly, then had an in-depth

discussion with my two supervisors. After the interview questions were settled, I asked friends in Taiwan working for the government, high-ranking officials, to be my pilot interviewees. The final version of the interview questions was modified after these procedures.

Far from going blindly into my second phase of fieldwork, I had searched all the backgrounds of my target interviewees, including their educational backgrounds, their publications, their positions in the governments, and the tasks they are in charge of at present. These tactics were applied both in doing fieldwork in China and Taiwan. Being a knowledgeable researcher in the course of an interview was very beneficial. During the period of each in-depth interview which lasted on average forty minutes to one hour, I was not only playing the role of interviewer, but also an information provider to fulfill my interviewees' inquiries.²⁸

Additionally, regarding my national identity in the course of interviews, I learned much from the experiences in the first phase of fieldwork. I brought the experiences back to my supervisors and other Taiwanese scholars who are well experienced in doing research in China, and sought their advice. Their suggestions were as follows:

- 1) Not to actively express my viewpoints about the political relationship between China and Taiwan in front of the interviewees in China, although some of my participants were eager to know how Taiwanese people viewed this issue;
- 2) Not to use the term 'two countries' but 'two settings';
- 3) Not to mention I am doing a comparison between Taiwan and China, but say I am doing geographically 'regional research';
- 4) Never touch any political issues about union (between China and Taiwan) or Taiwan's independence from China, and so forth;
- 5) Express my interests in the programme they are running;
- 6) Use opening sentences such as 'I am no expert in this field; however, I am interested in this programme. If I have any misunderstandings about this issue, I am happy to be informed.'

As I mentioned earlier on the issue of accessibility, China presents particular challenges

²⁸ The interviews always began with introducing who I am, where I am from and why I am here (the field), which attracted my interviewees' interests in how Taiwan/China made their digital divide policies, and how European countries, such as the UK, consider and take actions of bridging the digital divide. The interview could go more smoothly than I imagined via the exchange of my knowledge of other countries' digital divide policy development.

for the researcher. The Chinese culture highly emphasises personal connections. Thus, before entering into the second phase of fieldwork, I had built some connections and contacts in Chinese Academy of Sciences, Chinese Academy of Social Sciences and Tsinghua University via my supervisors. Friends in Taiwan who have connections with Chinese scholars in mass communication also did me a big favour in arranging interviews. Therefore, I could get the interviewees' mobile number beforehand. When I called them, my strategy was using the opening such as 'I am who's friend, and who introduced you to me. S/he recommended you are the expert in this area...', which strategy was taught by my Chinese friends and was very helpful in making interview appointments. Additionally, an official position as a visiting scholar in Chinese Academy of Social Sciences also helped me a lot in my second phase of fieldwork in China.

After coming back from the second phase of fieldwork and discussing it with my supervisors, we found that I still needed more interviews to support my preliminary analysis from my first two phases of fieldwork. Based on previous experiences, I asked my second supervisor again to help me get a position as a visiting student in Chinese Academy of Sciences, which is the highest-ranked national research institute in China, and this strategy also helped me to build my interpersonal contacts with senior officials in Chinese central government.

I also seized every opportunity to make contacts with Chinese visiting scholars in Edinburgh, and obtained much help from their contacts in Beijing. As I mentioned above, conducting interviews in China, especially as a junior researcher from Taiwan doing PhD in the UK, brought more difficulties for me. I was reminded by my friends neither to mention that I was doing a PhD in the UK, nor to use English but Chinese to make appointments via emails. But this reminder did not apply to all interviewees; some of my interviewees who got degrees abroad were happy to communicate with me in English.

3.7 Summary

In this chapter, I explained how the research design for this study was developed based on the analytic framework proposed in Chapter 2. First of all, I discussed the methodological implications of Hajer's discursive approach in this research. Then I started to describe my experience of conducting fieldwork in China in particular, and I explained why I needed to do three phases of fieldwork and how I was mapping digital divide policy in case countries. I discussed the theoretical support for conducting

comparative studies as well as what is being compared in this thesis. Secondly, I presented a triangulation of data collection and explain why these methods are suitable for this study. Thirdly, I discussed the methodological implications of Hajer's discourse analysis as discussed in Chapter 2 in terms of my analytical framework. For the empirical analysis, I structured the steps for analysis, each of which is identical to the research questions raised in Chapter 1. I also explained how to combine two approaches—STS (interpretive flexibility) and interpretive policy research (esp. storylines) in data analysis. Furthermore, I attached my question guidelines for personal interviews. Finally, I addressed the accessibility issue in conducting interviews in China as well as the reflection on this study, and I then outlined the resolutions to the difficulties. The methodological reflection on the accessibility to policy makers (the 'black box'), and its implications for this research will be discussed in Chapter 10.

Chapter 4

International Context for Digital Divide Policy

Chapter 2 demonstrated that, in theory, context can affect policy outcomes via discursive frameworks. Empirically, research concerning the impacts of the global policy context on national policy has proliferated (e.g. Hamelink, 1999). However, existing research mainly focuses on the institutional dimensions, investigating predominately how the international institutions coordinate national policies. It does not go further to examine the discourses that originate from the institutions, and it also ignores the fact that discourses play a significant role in mediating between institutions and actions during the course of policy-making and implementation. Thus, this chapter will centre on this ignored dimension to understand the interpretations of digital divide. This international context may influence the subsequent policy-making and implementation in my case studies—China and Taiwan.

This chapter begins the substantive body of this thesis. I will selectively present and analyse the framings of the digital divide and relevant conferences/summits in international organisations, which will serve as the broader context in which my two case countries are situated when they are making digital divide policy. The sources for analysis in this chapter mainly come from documents derived from several international and Asia-based regional organisations.

Section 4.1 provides a general account of international contexts in which the accounts of the digital divide and digital divide policy emerge. I investigate the understanding of the digital divide, tracking back to the influential US National Information Infrastructures (NII) programme and other NII initiatives in the early 1990s. This is because the orientation of NII in individual countries is rather similar—particularly its emphasis on ‘national competitiveness’—and it has contributed to the promotion of digital divide policy-making and implementation from the mid-1990s onwards. Section 4.2 focuses on digital divide related initiatives in international/regional institutions and related digital divide discourses, which construct the global context that affects national digital divide policy-making and implementation. Furthermore, it is divided into two time periods, one prior to the 2003 World Summit on the Information Society (WSIS), and the other after it, because the 2003 WSIS brings an alternative influential framework—human rights—into the discussion of the digital divide. Section 4.3 provides a general synthesis of the dominant themes in the content of policy

documents as well as a scholarly discussion on the discourses of the digital divide. Section 4.4 concludes this chapter.

4.1 A General Account

The historical development that I explore in this section starts with the US National Information Infrastructure (NII) initiative in 1992/3. I argue that it plays a crucial role. It establishes the idea of building a national information infrastructure and provides a systematic framework for addressing the society-wide adoption (and non-adoption) of ICTs. More important for this thesis is its role in spreading the idea of building national information infrastructure to other countries, with the extension of the ideas of the National Information Infrastructure to those of the Global Information Infrastructure (GII), thus profoundly, influencing the subsequent concerns on the digital divide. Afterwards, three points are raised under this main concern. Firstly, the NII/GII initiatives focus on the building of a nation's infrastructure and emphasise economic development. Secondly, following the first point, they may have influences on the interpretation of the digital divide that takes the provision of hardware as the solution to bridging the digital divide, and are mainly concerned about the divide between countries as well as economic development in international fora (G8 and APEC) when the topic of the digital divide is discussed. Thirdly, when the WSIS was held in 2003, the nation-centred/economic development framework with which the digital divide had been discussed began to shift towards one which incorporated an individual/'people-centred'/human rights perspective.

4.1.1 The Bandwagon of Global NII Initiatives in the Early 1990s

This global bandwagon of NII began in the US in 1993 under the then Clinton Administration. Clinton's Vice-Presidential candidate Gore had proposed the NII plan in the presidential campaign in 1992 (Schneider, 1997) and the US NII became 'a model for other countries to provide similar plans' (Blanning *et al.*, 1997: 215). Afterwards, the NII found its official expression in a variety of policy initiatives²⁹ (Schneider, 1997) and presented itself as having several roles³⁰. Here, two issues in relation to the concern of this thesis, the digital divide, are flagged. First of all, the original emphasis is on the physical infrastructures as demonstrated by the policy text which states that NII is 'a

²⁹ For more details refer to Kubicek and Dutton (1997) and Schneider (1997).

³⁰ The goal of NII touched upon a variety of issues, including 'promoting private investment and legislative reforms; ensuring network reliability; protecting information privacy and intellectual property rights; and providing for a more open and efficient government' (McConaughy, 1997: 221).

seamless web of communications networks, computers, databases, and consumer electronics that will put vast amounts of information at users' fingertips' (IITF, 1993; cited in Kalil, 1997). Secondly, the NII is conceived as a driver of economic growth: the then 'US Vice President Gore emphasised that it is critically important to the economic future of the United States' (McConnaughey, 1997: 221).

This interwoven consideration of infrastructural focus and economic future is integrated into that of international competition. As observed by West (1996), 'international technological competition among developed nations was both a cause and effect of industrialisation of Japan' (West, 1996: 251). The technology policy had come to the fore in western countries seeking to response to the perceived challenge of the Japanese economy in key sectors, i.e. shipbuilding, vehicles and consumer electronics (ibid.). Therefore, the 1980s, as West describes it, was an era that was immersed with anxiety about 'national competitiveness' (West, 1996: 254) permeating advanced countries, which resulted in the NII initiatives in the early 1990s.

The goal of national competitiveness further permeated NII initiatives in East Asia. Beginning with Singapore's national telecommunication plan in 1992/1993 titled *The IT 2000 Report: Vision of an Intelligent Island*, the rebuilding of national competitiveness became one of the most important policy issue in advanced countries. As the first country to propose a national development plan in 1992, the Singaporean government was motivated to achieve the goal of the creation of 'new national competitive advantages and enhance the quality of life of Singapore by the year 2000' (Wong, 1997: 32). It was hoped that the new national competitive advantages for Singapore would be realised via developing a global hub and boosting the economic engine (*IT 2000 Report, Singapore*).

There are many examples which demonstrate that NII initiatives were driven by concerns about national competitiveness. According to Singapore's national telecommunication plan in 1992/1993 titled *The IT 2000 Report: Vision of an Intelligent Island*, the Singaporean government was motivated to achieve the goal of the creation of 'new national competitive advantages and enhance the quality of life of Singapore by the year 2000' (Wong, 1997: 32). It is hoped that the new national competitive advantages for Singapore will be realised via developing a global hub and boosting the economic engine (*IT 2000 Report, Singapore*). Korea saw NII as 'a part of national economic policy to provide the tools for competitiveness, and thus economic development, in a globalised economy' (Jeong and King, 1997: 113). Japan was driven by

‘a “catch up” mentality—the view that Japan is behind in both plans for an information infrastructure, and key technologies such as networking and software’ (West, Dedrik, and Kraemer, 1997: 67). The EU and many individual European countries recognised that they needed to steer the movement of the information society because of ‘the awareness that a strategic competitive edge in the world economy increasingly seems to depend upon the availability, use, and exploitation of information’ (Hedblom and Garrison, Jr, 1997: 490)

China and Taiwan also jumped on this bandwagon ‘in order to propel themselves into the 21st century information age’ (Blanning *et al.*, 1997: 218). China began its NII generally known as the ‘Golden Projects’ in 1993, in response to NII initiatives in the advanced economies of the US, Japan, and Europe (Muller and Tan, 1997), along with three other facets: the modernisation of its industrialisation, software development, and training of information technology personnel (Blanning *et al.*, 1997: 220). Taiwan created its NII in 1994 ‘whose purpose is to transform Taiwan into an “Asian-Pacific regional operations centre” and to encourage the formation of information service providers in government and commerce, as well as healthcare, education, and entertainment’ (Blanning *et al.*, 1997: 223).

The core belief of these NII initiatives follows the logic that ‘investments in technology can play a critical role in stimulating economic growth and productivity’ (Kraemer and Dedrick, 1996: 319) for each individual country. It furthers the belief that technological change can bring about national competitiveness and this belief occupies policy concerns for those countries that lost the race in the Industrial Revolution in the 19th century. Therefore, ‘the NII is seen as a part of national economic policy to provide the tools for competitiveness, and thus economic development, in a globalised economy’ (Jeong and King, 1997: 113).

4.1.2 1993/4 Information Society (EU) Extending the Focus beyond Economic Growth

Competition between advanced countries concerning ICTs has continued since the early 1990s when the US NII was activated. Shortly afterwards in 1993, the European Union (EU) proposed the idea of an ‘Information Society’ (the White Paper on *Growth, Competitiveness and Employment –Challenges and Ways Forward into the 21st Century*). Subsequently, in 1994, a group of senior industrialists, coordinated by Commissioner Martin Bangemann, was established to publish the Bangemann Report (*Europe and the Global Information Society—Recommendations to the European Council*). This policy initiative

addresses similar problems, aiming at similar goals and adopts similar strategies (Schneider, 1997: 340) to that of the US.³¹ However, the interesting point is that the US, with its NII dominated by private players, emphasised state intervention directed towards market failure; in contrast, EU with its social democratic tradition and many post and telecommunications still state-owned national monopolies, emphasised market solutions. This shows that, as I mentioned in Chapter 1 and 2 about the complex relationship between context and policy discourses, policy discourses may not be a direct reflection of the situation of a country.

The approaches of EU and the UK 'are clearly towards the market' (d'Udekem-Gevers and Lobet-Maris, 1997: 201). It is only later that EU policy developed a much stronger social focus (d'Udekem-Gevers & Lobet-Maris, 1997). The EU observed that ICTs have a profound influence on economic interactions and on society as a whole, and ICTs must be harnessed to serve society rather than merely drive economic development (Niebel, 1997). Therefore, what the 'Information Society' policy seeks to express is a comprehensive and integrated view of the new phenomenon (Niebel, 1997: 62) that ICTs bring to society.

4.1.3 1995 Onwards, from Global Information Infrastructure (GII) / Global Information Society (GIS) to the Digital Divide

The U.S. vision of NII that emphasises infrastructure and economic growth soon spread to a global level and became a globalised task. It may also have influenced the globalising digital divide discourses in international organisations (see section 4.2). In 1994, the then American Vice President Al Gore introduced the U.S. vision for the GII at the first World Telecommunication Development Conference. In the preface of *The Global Information Infrastructure: Agenda for Cooperation*, Gore called upon every nation to establish an ambitious agenda to build the GII, which includes five principles: encouraging private sector investment; promoting competition; providing open access to the network for all information providers and users; creating a flexible regulatory environment that keeps pace with rapid technological and market changes; and ensuring universal service.³² Thereafter, these features formed a point of reference for the subsequent international conferences/summits concerning the digital divide, i.e. Group

³¹ The similarities between NII/IS perhaps stem from mimicry or a shared view of technology. However, divergence of policy discourses exists between US-NII and EU-IS. That is, the Bangemann Report emphasises markets, and Clinton focuses on public interests.

³² For more detailed information, please refer to 'The Global Information Infrastructure: Agenda for Cooperation', <http://www.ntia.doc.gov/oiahome/Giiagend.txt>

of Eight (G8), the United Nations (UN), Asia-Pacific Economic Cooperation (APEC), etc., which I will describe in section 4.2.

Meanwhile, the policy focused very much on the infrastructure construction because it was argued that the digital divide will hinder expected development and national/regional competitiveness of GII if ICTs do not reach everyone in society. With this issue of the digital divide in mind, the National Telecommunications and Information Administration (NTIA) of the U.S., an important constituency participating in the NII initiative, embarked on a series of surveys on the digital divide (see Chapter 1). Individual nations and regional commissions, i.e. the US and EU, lent weight to the significance of ICTs and the threat to national competitiveness, economic development and disparity caused by the uneven distribution and usages of ICTs. Afterwards, the issue of the digital divide began to gain visibility worldwide, and several international organisations held conferences/summits in relation to bridging the digital divide.

The concerns of these international organisations centre on the global situation and in particular the global digital divide. They are concerned about the divides between nations, instead of divides within nations. This can also be evidenced and traced back as early as 1997 when the then G7 announced that there was a gap between industrialised and developing countries. However, actual use of the term 'digital divide' first occurred in an international organisation when the *Okinawa Charter on Global Information Society* was drawn up at the G8 summit in July 2000 (Personal Interview, CH09. January 2006). In the Charter, the recurrent themes of ICTs and digital divide policy which came to dominate subsequent international conferences/summits are highlighted, i.e. sustainable economic growth, public welfare, social cohesion, democracy, the promotion of human rights, etc. To meet the ends of the Charter, the G8 founded the *Digital Opportunity Task Force* in 2001 to clarify the definition of, and solution to the digital divide.

In addition to G8, a regional organisation APEC, consisting of Asian countries, was also devoted to finding a solution to the digital divide on economic grounds, i.e. to foster the development of a knowledge-based economy. The concern of APEC is predominantly to boost the Asian economy, via economic transition to a knowledge-based economy by taking advantage of the development, penetration and usage of ICTs. The main concerns are presented in a series of reports drafted by the Economic Committee of APEC in 2000, 2001 and 2002 respectively.

Thus far, the framework of the digital divide which emerged from the G8 and APEC was one which focused on the prospects of national economic growth and regional economic growth, although some peripheral themes were also emerging, e.g. public welfare, social cohesion, human rights, etc. Around this time, another international organisation, the UN, was also involved in discussing the digital divide issue. In 2002, International Telecommunication Union (ITU), which once played a vital role in building an industrial economy (Cogburn, 2003), hosted *Plenipotentiary Conferences* to propose the *Strategic Plan—Bridging the digital divide*, and in 2005 proposed *Building Digital Bridges—Approaches and Best Practices* to the issue of the digital divide.

Additionally, under the leadership of ITU, the UN General Assembly held a two-staged WSIS in 2003 and in 2005 respectively. The symbolic importance of WSIS lies in the involvement of all international organisations in the issue of the digital divide as well as the integration of ICT for Development related initiatives/programmes into one summit. Furthermore, the profound breakthrough resides in the embracing of a wide-range of concerns on bridging the digital divide. These ranged from merely a nation-centred perspective to a 'people centred, inclusive, development-oriented information society' (*Declaration of Principles*, 2003 WSIS).

4.2 International Programmes and Global Digital Divide Discourses

4.2.1 Prior to 2003 World Summit on Information Society

In this subsection I look at the globalisation of digital divide discourse and its migration through various fora to its authoritative ultimate location in WSIS providing in-depth details.

4.2.1.1 G8 (2000-2001)

Prior to 2003, G8 was one of the earlier international organisations that provided an interpretation of the digital divide (in both 2000 and 2001). Organised by rich countries, the contribution of G8 to the issue of bridging the digital divide was via holding a meeting in Okinawa on 22nd of July, 2000. The achievement of the meeting was drafting the document titled *Okinawa Charter on Global Information Society*, and then a task force the 'G8 Digital Opportunity Task Force' (DOT Force) was created afterwards in 2001. Though the task force only existed for two years, it definitely developed some ideas that become central in building an information society and bridging the digital divide (Chadwick,

2006: 215).

Okinawa Charter on Global Information Society, Okinawa, July 22, 2000

The Charter has many features common to those of GII, as I have summarised below (see Figure 4.1), which reveals that the Charter may be cross-referenced with the goal of GII. Further evidence which supports this observation is that the US, which proposed GII, is also member of G8.

The Charter began with a technological determinist perspective in clause 1, for example:

Information and Communications Technology (IT) is one of the most potent forces in shaping the twenty-first century. Its revolutionary impact affects the way people live, learn and work and the way government interacts with civil society. IT is fast becoming a vital engine of growth for the world economy. It is also enabling many enterprising individuals, firms and communities, in all parts of the globe, to address economic and social challenges with greater efficiency and imagination. Enormous opportunities are there to be seized and shared by us all. (*Okinawa Charter on Global Information Society, Okinawa, 22/07/2000*)

In line with this technological determinist perspective, economic growth is the main concern of the G8. As shown in the above extract, two phrases—growth of the world economy and sustainable economic growth—appear in the first two clauses to pinpoint the significant role of ICTs in economic growth. The positive implications of ICT³³ for economic development recur throughout the Charter. For example, the Charter emphasises that in order to build a society to fulfill people's potential and realise their aspirations, it is of great importance to ensure that ICTs are supported to meet the goals of 'creating sustainable economic growth, enhancing the public welfare, and fostering social cohesion', and 'work to fully realise its potential to strengthen democracy, increase transparency and accountability in governance, promote human rights, enhance cultural diversity, and to foster international peace and stability'. In this Charter it seems that the ICTs can act as a panacea to solve all the problems caused by modern society. It is within such logic that the digital divide represents an obstacle to their positive impacts. However, the Charter does not clarify the real disadvantages of the digital divide, but turns quickly to repeat the advantages of ICTs in the twelfth paragraph with the emphasis on their effects as a panacea for all social problems.

³³ Although the Charter uses the abbreviation 'IT', the full phrase in the Charter is Information Communication Technology.

However, as far as the G8's commitment to bridging the digital divide is concerned, it provides a wide range of concepts. For example, apart from the economic concern, it also mentions the concept of 'social inclusion', an idea which was pinpointed in NTIA's fourth digital divide report (US, 2000) as well as in the Lisbon Summit (EU, 2000) (see Figure 4.4). This serves as a cross-referenced example in globalising digital divide discourse.

<i>GII: Agenda for Cooperation (1994)</i>	<i>G8: Okinawa Charter on GIS (2000)</i>
<ul style="list-style-type: none"> ●Encouraging private sector investment (p.1) 	<ul style="list-style-type: none"> ● The private sector plays a leading role in the development of information and communications networks in the information. It is important to avoid undue regulatory interventions that would hinder productive private-sector initiatives in creating an IT-friendly environment. (Clause 7)
<ul style="list-style-type: none"> ●Promoting Competition (p.1) 	<ul style="list-style-type: none"> ●Continue to promote competition in and open markets for the provision of information technology and telecommunications products and services, including non-discriminatory and cost-oriented interconnection for basic telecommunications. (Clause 7.1)
<ul style="list-style-type: none"> ●Providing open access to the network for a information providers and users (p.1) ●Ensuring universal access (p.1) 	<ul style="list-style-type: none"> ●...our commitment to the principle of inclusion: everyone, everywhere should be enabled to participate in and no one should be excluded from the benefits of the global information society. The resilience of this society depends on democratic values that foster human development such as the free flow of information and knowledge, mutual tolerance and respect for diversity. (Clause3) ●Bridging the digital divide in and among countries has assumed a critical importance on our respective national agendas. Everyone should be able to enjoy access to information and communications networks. (Clause 9) ●A key component of our strategy must be the continued drive toward universal and affordable access. (Clause 10)
<ul style="list-style-type: none"> ●Creating a flexible regulatory environment that can keep pace with rapid technological and market changes (p.1) 	<ul style="list-style-type: none"> ● We will exercise our leadership in advancing government efforts to foster an appropriate policy and regulatory environment to stimulate competition and innovation, ensure economic and financial stability advance stakeholder collaboration to optimise global networks (Clause 5)

Figure 4.1 Comparison of Goals of GII and G8. Compiled by the Author)

Digital Opportunities for All: Meeting the Challenge (Report of the Digital Opportunity Task Force, 2001)

The contribution of the Charter to bridging the digital divide is its creation of a follow-up action—the birth of the Digital Opportunity Task Force in 2001. This task force aims to bridge the digital divide in both national and international levels, and give a clearer operational definition of the digital divide compared to the previous Charter.

The task force defines the digital divide as ‘a reflection of existing broader socio-economic inequalities and can be characterised by insufficient infrastructure, high cost of access, inappropriate or weak policy regimes, inefficiencies in the provision of telecommunication networks and services, lack of locally created content, and uneven ability to derive economic and social benefits from information-intensive activities’ (*Report of the Digital Opportunity Task force*, G8, 11/05/2001).

Furthermore, it also proposes the resolution to bridging the digital divide. In the report, it states that ‘a fundamental requirement for reducing the digital divide is for countries to give priority to the development of their communications infrastructure and to provide universal and affordable access to individuals and all geographic areas of their country. A pre-requisite for this is to put in place pro-competitive policies in the communications sector and a regulatory framework that will support such competition’ (*Report of the Digital Opportunity Task force*, p.8). The context here is that they fear that a non-competitive policy will keep prices high, which is part of a *laissez-faire* solution.

4.2.1.2 UN

The UN is a significant international organisation dealing with the issue of information society and the digital divide. The building and development of the information society is the key objective for the UN. It has been working on the GII since 1998 onwards. For example, in 1998, ITU proposed *a general GII standards development and GII principles and framework architecture*; in 2000, ITU proposed *GII terminology: terms and definitions, GII scenario methodology*, and *GII reference points for interconnection framework* (ITU official website). Thus, GII to a large extent has impacts on the subsequent digital divide discourse of UN subsections.

In September 2000, the Member States of the United Nations adopted a *Millennium Declaration*, one of the commitments of which is to ‘ensure that the benefits of new

technologies, especially information and communication technologies are available to all'. Under the structure of the UN, several commissions and institutions are responsible for the development of the information society. A brief architecture is presented as below:

International Telecommunication Union (ITU)

Previously launched in 1865 as the International Telegraph Union, the International Telecommunication Union gained its current name in 1932. In 1947, the International Telecommunication Union became an official specialised agency under the Economic and Social Council of the UN. In 2002, ITU's plenipotentiary conference endorsed a strategic plan for 2004-2007, the priority of which is to bridge the international digital divide and prepare for the two-staged World Summit of Information Society in 2003 and 2005 (<http://www.itu.int/aboutitu/overview/history.html>. See the history of ITU).

In the early 1990s, when ICTs were in their emerging stages, ITU played a very important role for structuring the order of international telecommunications. Launched in 1865, ITU had already an established presence in the international regulation of telecommunication, i.e. developing common standards and regulations for the burgeoning global telegraph networks (Chadwick, 2006: 212). ITU at that time represented an emerging telecommunications regime. However, now ITU faces a challenge with the convergence of ICTs that other major players are important in this new world. As Cogburn (2003) argues, the regime created by ITU is more suitable for an industrial economy than for an information society. Therefore, with the decline of ITU, as well as more and more high-level international conferences being held, a new regime—global information society—is emergent. ITU no longer plays a dominant role in the information society, but acts as a backup to assist relevant international conferences and summits, e.g. WSIS (Chadwick, 2006: 221).

In 2002, ITU organised the *Third World Telecommunication Development Conference* (WTDC). It established work programmes and guidelines, and defined ICT development questions and priorities in view of the high-level of recognition of the digital divide created by the rapid and pervasive expansion of ICTs. It also determined the objectives and strategies for the balanced worldwide and regional development of telecommunications, giving particular consideration to the expansion and modernisation of the networks and services of the developing countries as well as the mobilisation of

the resources required for this purpose (source from the ITU official website)³⁴. Following the conclusion of 2002 WTDC, an initiative titled *Building Digital Bridges—Approaches and Best Practices* was formed in 2004. Hereafter, an action plan for bridging the digital divide was published in 2005. In the plan, it emphasised that ‘access to ICTs is seen as an essential factor for development and the improvement of the well-being society’ (*Building Digital Bridges—Approaches and Best Practices*, p.1). It also refers to the 2003 WSIS which underscored the importance of ICT infrastructure for the establishment of an inclusive information society (*Building Digital Bridges—Approaches and Best Practices*, p.1). In order to meet this goal of the WSIS, the Initiative develops a digital opportunity index to measure technology access and presented this in the 2005 WSIS.

United Nations Information and Communication Technologies (UNICT)

This initiative was launched in November 2001, a creation of the UN’s Economic and Social Council. UNICT serves as a coordinator among other international organisations for the improvement of the development of the information society. Its ambition is to engage developing countries in information society policy-making. However, as a co-ordinator, the coordinating ability of UNICT leaves much to be desired due to the shortage of budget to exert their power. This situation is also encountered by the coordinating institutions of digital divide policy in individual developing countries, i.e. the case countries in this thesis—China and Taiwan. The detailed analysis of their positions will be presented in the following chapters.

United Nations Commission on Science and Technology for Development (UNCSTD)

At its second session, in May 1995, the United Nations Commission on Science and Technology for Development (UNCSTD) chose the topic information technology (IT) and development as its main theme for the next session in 1997. A Working Group was established to study the particular problems of access to and use of IT by developing countries. The main task was to prepare a short report for consideration by the Commission (Mansell and Wehn, 1998: foreword).

In its *Statement on Universal Access to Basic Communication and Information Services* of April 1997, the United Nations Administrative Committee on Coordination noted the following:

³⁴ http://www.itu.int/ITU-D/conferences/wtdc/2002/brochure/who_what_where_why.html

The information and technology gap and related inequalities between industrialised and developing nations are widening: a new type of poverty—information poverty—looms. Most developing countries, especially the Least Developed Countries (LDCs), are not sharing in the communications revolution, since they lack:

- affordable access to core information resources, cutting-edge technology and to sophisticated telecommunications systems and infrastructure;
- the capacity to build, operate, manage and service the technologies involved;
- policies that promote equitable public participation in the information society as both producers and consumers of information and knowledge; and
- a work force trained to develop, maintain and provide the value-added producers and services required by the information economy (ITU, 1998).

UNCSTD selected ICTs and Development as its main theme for the period 1995-1997. At that time, 'a Working Group was set up to examine advances in ICTs and their implications for development, focusing mainly on problems of access to ICTs and the potential developmental impact of these technologies on developing countries' (Talk by the Chief, Technology for development Section, UNCATD, 2002)³⁵. The Working Group proposed many recommendations filed in the source book in 1998, titled *Knowledge Societies: Information Technology for Sustainable Development*, which interestingly couples these two concepts. Their basic objective is sustainable development, a phrase which was defined by the Brundtland Commission in 1987, as 'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland Commission, 1987).

Thus far, although these sub-organisations of the UN present a broader vision of ICTs that focuses on 'using its potential to maximise social-welfare and socioeconomic development' (Cogburn, 2004: 155), they still reveal a narrower version which focuses on the potential for economic growth and development of ICTs.

4.2.1.3 APEC—Regional Organisation on Bridging the Digital Divide/Asia

In the existing, western-dominated literature on the regional organisations pertinent to the information society and the digital divide, the Asian-countries-based regional

³⁵ 'Briefing the work of the United Nations Commission on Science and Technology for Development in the area of ICTs for Development', WSIS PrepCom-1, 1-5 July 2002. Document can be accessed on http://www.itu.int/wsisis/docs/pc1/statements_general/uncstd.doc.

organisation APEC, attracts relatively little attention. However, APEC hosted a series of heated debates and discussions among member states during the period of ministerial meetings. The aim of APEC focuses on transforming the digital divide into digital opportunities.

Similar to GII and G8, the eventual objective of APEC is developing a liberated, market-let regional environment for the Asian region. This convergence of perspectives may stem from cross-referencing as well as the overlapping membership between these international organisations (see Figure 4.2. The countries with membership in both G8 and AEPC are emphasised in *Italics* by the author). Praising the advantages stemming from knowledge-based economies, the Economy Committee published a series of three interrelated reports in 2000, 2001 and 2002 respectively. In the 2000 report, the committee recognised that the economic growth of the knowledge-based countries appears sustainable; it therefore encouraged APEC countries to take steps towards this economic approach. In the 2001 report, the committee further examines what constitutes the ‘right policy environment’ to build a new economic approach.

G8	<i>Canada</i> , France, Germany, Italy, <i>Japan</i> , <i>Russia</i> , the United Kingdom, <i>the United States</i>
APEC	Australia, Brunei, <i>Canada</i> , Indonesia, <i>Japan</i> , Malaysia, Philippine, New Zealand, Singapore, Republic of Korea, Thailand, <i>the United Nations</i> , China, Taiwan, Hong Kong, Mexico, Papua New Guinea, Chile, Peru, <i>Russia</i> , Vietnam

Figure 4.2 Memberships of G8 and APEC

Following the efforts made in the previous two year’s reports, in 2002, the committee examined the elements required for a knowledge-based economy, and took a close look at the issue of the digital divide from the experiences of four countries—Australia, Canada, Japan, and Taiwan. In this report titled *The New Economy in APEC: Innovation, Digital Divide and Policy* by APEC Economic Committee (2002), ‘New Economy’ replaces the ‘Information Society’ used in UN documents. However, they both refer to the same economic model, with a strong emphasis placed on ICTs for sustainable development. Also in 2002, Taiwan drafted the plan *Transforming the Digital Divide into a Digital Opportunity*, which followed it proposal submitted in the 2000 APEC conference. In 2003, Taiwan submitted a proposal to establish an APEC Digital Opportunity Centre (ADOC) at an APEC meeting, the goal of which is to help bridging the digital divide in APEC countries.

4.2.2 After 2003 WSIS—Birth of a Global Integrator to Bridge the Digital Divide

As described above, concerns about the digital divide have circulated in international organisations. These concerns are presented in a spectrum from addressing narrow economic development to a wider socio-economic perspective. All of these perspectives contributed to the World Summit on Information Society in 2003 and 2005, a two-stage international summit held by the UN. The summits only lasted for a few days, however the preparatory and follow-up processes takes several years. Figure 4.3 shows the processes leading up to the WSIS which was finally held in 2003 and 2005 (Klein, 2004: 4-5).

Year	Process
1998	The ITU proposed it within the UN system.
2001	The General Assembly formally authorised the summit
2003	The first phase summit was held in December in Geneva
2005	The second phase summit was held in November in Tunis

Figure 4.3 Process Leading up to the WSIS

4.2.2.1 Phase One—2003, Geneva

The results of the first stage are the creation of two official documents—*Declaration of Principles* and *Plan of Action*.

Declaration of Principles

In the first passage of this document, it claims that an information society, which is people-centred, inclusive and development-oriented, is the aim of the WSIS. To build such an information society, ICTs serve as the most important tools. Similar to the Okinawa Charter of G8, ICTs in this Principle are assigned as an antidote to cure all the social problems ranging from poverty, gender inequality, illness, human rights abuses and the like. Under this umbrella of goals, any impediment to an information society needs to be eradicated; in this case the digital divide.

In this declaration, the digital divide is defined as the way that ‘the benefits of the information technology revolution are today unevenly distributed between the developed and developing countries and within societies’ (passage 10). Furthermore, the declaration proposes a slogan of ‘turning the digital divide into digital opportunities’, in

which opportunities are for all, especially those who are left behind and marginalised (passage 10).

Plan of Action

To complement this declaration, the *Plan of Action* was drafted afterwards to translate the guiding principle into practice, as well as provide 'an evolving platform to promote the Information Society at the national, regional and international levels' (passage 2) due to different levels of the information society. In the Plan, the methods to achieve the aforementioned objectives, aims and goals are methodically listed, to serve as the references while each country is making national policy to join the international information society.

4.2.2.2 Phase Two—2005, Tunis

Tunis Commitment and Tunis Agenda for the Information Society

Simply put, the second phase of the WSIS was a follow-up to examine the progress of each part made in the principles and plan during the first phase two years ago. The *Agenda* produced by the second phase adopts a much more practical stand to recognise the situations of developing countries to bridge the digital divide. Two years after the original declaration and plan were published, participant countries had endeavoured to make policy to bridge the digital divide. However, they found that in countries with limited resources, there are plenty of competing objectives to be met other than overcoming the digital divide. Therefore, in the Tunis Agenda, the WSIS recognised the reality facing developing countries, and set up financial mechanisms as well as the Digital Solidarity Fund to finance them.

The two-phased WSIS has produced four main documents, two for each phase respectively. *Declaration of Principle* and *Plan of Actions* are the outcome summaries of the first phase, and *Tunis Commitment* and *Tunis Agenda for the Information Society* were produced by the second. After the second phase, the WSIS publishes a collection of the outcomes of the two-phased summits. The material for analysis below is based on the collection *WSIS Outcome Document*, published in December 2005.

4.2.2.3 The Implications of the WSIS

First of all, the WSIS takes the position of a coordinator in coping with the issues related to the information society and the digital divide internationally. The summits symbolise a new global cooperation on the information society, including the public and private sectors and civil societies. The WSIS also takes over the tasks of other international organisations, and most of them 'have now been brought together under the umbrella of the WSIS' (Chadwick, 2006: 221). The WSIS also takes over the goal of ICT for Development from the previously scattered international organisations concerned with the issue of the digital divide.³⁶

Secondly, generally speaking, the purpose of the WSIS is to build a healthy information society on the basis of the previously published or upheld UN documents. The scope of these documents is very broad, ranging from poverty of the developing countries, gender inequality, children's development, health development, human rights and the like. Therefore, the outcome of the two summits is all-encompassing, and ambitious enough to cover all dimensions relevant to unbalanced development.

For example, new motivation for the WSIS to bridge the digital divide is transferring its concerns from a nation-centred to people-centred, inclusive, development-oriented information society. This transformation of the discursive and policy goals extends the policy issue from narrowly addressing economic growth to wider individual/social development, placing people at the centre of the policy issue.

Thirdly, after the WSIS, an alternative framework of the digital divide has emerged and has been gradually adopted by policy makers (which will be shown in Chapter 8 on Taiwan's digital divide policy-making). The rights-based framework stems from Communications Rights in the Information Society (CRIS), a non-profit organisation. The UN Secretary-General Kofi Anan also stated the need for the right to communicate very explicitly in his message on World Telecommunication Day (17/05/2003). He reminded the international community that there were millions of people in the poorest countries who were still excluded from the 'right to communication', which was increasingly seen as a fundamental human right. These warnings later provoked much discussion about the human rights to communication at WSIS. As mentioned in the previous section, 'human rights to communication' finally became the prominent policy

³⁶ WSIS Document Annex 2C, Report from the WSIS High Level Panel: 'ICT for Development'.

issue in WSIS.

To sum up, the two-phased WSIS summit gathered all international organisations to get involved, and integrate ICT-for-Development related initiatives/programmes into one summit. The objectives and goals of the UN and other international organisations to build an information society are methodically listed in the documents produced from the two-phased summit. The WSIS as a coordinator devoted to the building of an information society perfectly presents itself as an optimist concerning ICTs. However, in the Agenda of the second phase, it recognises the financial problems as well as the reality of competing objectives facing developing countries while implementing the declaration and plan in joining the information society. Nevertheless, WSIS still displays an optimistic stance to the role of ICTs for development. This optimism will be also noticed in the contexts of China and Taiwan in later chapters.

Figure 4.4 provides an overall map of international events related to bridging the digital divide. The marked areas indicate geography as follows: yellow for US, blue for EU and green for international organisations.

When	Where	Event
1992	US	<ul style="list-style-type: none"> • Clinton-Gore's plan on the national information infrastructure (NII) • The launch of NII Initiative
1994	EU	<ul style="list-style-type: none"> • The establishment of a High Level Group of Experts on the Global Information Society (GIS) • The publication of Bangemann Report on Information Society
1994	US	<ul style="list-style-type: none"> • Gore proposed the Global Information Infrastructure (GII) to the world stage in the International Telecommunication Union (ITU)
1994	EU	<ul style="list-style-type: none"> • Bangemann took the Information Society to the global stage when it persuaded G7 group of countries at its summit to set up a GIS Project
1995	EU	<ul style="list-style-type: none"> • Global Information Society (GIS) Project was operationalised through G7 ministerial conference on the GIS
1995-1996	UNESCO /ITU	<ul style="list-style-type: none"> • Started a process which culminated with the creation of the 'Africa Information Society Initiative: An Action Framework to Build Africa's Information and Communication Infrastructure' in 1996 • Africa was the first continent to undertake such a programme; however the concept of the digital divide was not been established yet.
1996	G7	<ul style="list-style-type: none"> • Sponsored a conference on the theme of 'Information Society and Development' which took place in South Africa • Concluded that there is gap between industrialised and developing Countries
1995-2002	US	<ul style="list-style-type: none"> • Five Digital Divide Reports • The original use of the digital divide was referred to fears about the differential access to ICTs in different schools in the US • The term and concept of the digital divide started to be adopted and spread over elsewhere • After the publication of the fourth report in 2000 titled <i>Falling through the Net: Toward Digital Inclusion—a Report on America's Access to Technology Tools</i>, the concept of social inclusion has permeated discussions of the digital divide.
2000	EU	<ul style="list-style-type: none"> • Lisbon Summit adopted 'social inclusion' in policy making.
2000	G8	<ul style="list-style-type: none"> • Okinawa, G8 summit, 'Okinawa Charter on Global Information Society'
2002	WB	<ul style="list-style-type: none"> • The Clinton-Gore initiative was taken to the global level. WB's online magazine Development Outreach report was titled 'From Digital Divide to Digital Opportunity: Business Leaders Report from Davos'. Clinton and Gates were present.
2003	UN	<ul style="list-style-type: none"> • WSIS phase I • 'Human Rights' became a prominent concept to bridge the digital divide
2005	UN	<ul style="list-style-type: none"> • WSIS phase II

Figure 4.4 International Events Related to Bridge the Digital Divide

4.3 A Synthesis of Dominant Themes and Discussion on the Digital Divide from the International Programmes

The social implications of ICTs, particularly the Internet, are often discussed in an over-optimistic way, known as technological utopianism, which is discussed in Chapter 2. It is under this optimistic framework that the digital divide attracts the attention of policy-makers because, whatever definition of the digital divide is ascribed, being unable to utilise the alleged advantages of the Internet would be regarded as a hindrance to 'development'.

In this section, based on the international programmes and global digital divide discourses I selectively listed and discussed earlier in this chapter, I categorise five discursive frameworks. These five frameworks represent the existing policy debates on the digital divide drawing from the international organisations discussed, ranging from macro to micro dimensions, from national development to individual human rights. I will discuss them individually with considerations of where the discursive framework is coming from, when the original usage of the concept arose and if necessary, its relationship with ICTs, and its policy implications.

4.3.1 National Competitiveness

As discussed above, the emphasis on national competitiveness from NII/IS, GII/GIS underpins the subsequent digital divide discourses. This reveals that a main motivation in bridging the digital divide is national competitiveness, which is a common strand in technology policy in developed countries in the 20th century (West, 1996). The ideology of national competitiveness is 'the use of a (real or imagined) advantage held by another nation as a justification for domestic policies', 'used to sell technology policies to government, industry, and the public at large' (West, 1996: 251).

This perspective regards telecommunications as a key infrastructure that 'promotes development through combination of three factors; externalities, knowledge creations and regional development' (Mariscal, 2005: 413-414). That the digital divide has gained so much attention in comparison to other divides—such as economic, social and political—reflects the belief that IT³⁷ has the potential to improve the living standards of disadvantaged groups by helping them upgrade their income (Mariscal, 2005: 413).

³⁷ The two terms 'IT' and 'ICT' are exchangeably used in international documents. 'ICT' takes over from 'IT' as the recognition of new communications media grows.

This perspective also shows that 'there is a clear need to bridge the digital divide by subsidising access to telecommunication services because of its contribution to economic development' (Mariscal, 2005: 413). In this sense, it 'is biased toward the supply side and gives little attention to demand' (Mariscal, 2005: 415).

4.3.2 ICT for Development

The conceptualisation of development in the 1990s to a large extent presents the continuity of the Modernisation Theory (Schech, 2002: 13) of the 1950s and 1960s. Newly developed ICTs are expected to bring about a prosperous global society. However, the abstract notion of development is gradually split into two perspectives. One is concerned about the broader development for all populations in the world, focusing on human development. The other one is narrowly and mechanically concerned about global and domestic economic growth. The international and regional organisations to a larger or less extent combine these two perspectives, but sometimes emphasise one more than the other.

Ideally, 'ICTs for development' presents a shift in the model of development comparing with that in 1950s and 1960s. For example, it 'points out a shift from a focus on centralised, state-led development agency, to a more de-centralised version of development agent' (Schech, 2002: 13). Thus, the denotation of development in the phrase of 'ICT for development' embraces a broader development that encompasses participant development, democracy, respects for human rights, an inclusive information society and people-centred information society. It presents a similar vision to that observed by Cogburn (2004). The organisations aiming to develop an equal information society are concerned about non-material development, such as human rights, human development and the like, and an endeavor to bridge the digital divide (Cogburn, 2004).

In practice, the narrower development discourse occupies a crucial position in digital divide policies in developing countries, which will be evidenced in the following chapters regarding case studies in China and in Taiwan. This narrower development discourse attracts some scholars' attention and worries. For example, Wade (2002) is worried that developing countries will be trapped in a new form of dependence on developed nations in the course of bridging the digital divide. He further proposes an argument to counter the power of the IT-for-development myth. He suggests that the efficiency of IT has been overstated, both 'to corporate and public organisations and to stronger responsiveness of government to citizen-customers' (Wade, 2002: 443). IT cannot solve

the fundamental problem—poverty and income inequality.

Wade continues that ‘the big worry about the ICT-for-development movement is that it reflects a rationality of action that is obstructing rational decisions about development investment’ (Wade, 2002: 462). Less developed countries ‘are disadvantaged in their access to the global economy not just by their lack of income, skills, infrastructure, and the like, but also by the very standards and rules that are built into the international systems. These standards and rules ensure that as developing countries become more integrated into the international ICT system, Western suppliers benefit disproportionately’ (ibid).

4.3.3 Social Inclusion

The concept ‘social inclusion’, prevailing mainly in continental Europe, is used to counter its contrast ‘social exclusion’, a concept about inequality of process. The adoption of social inclusion in policy making originated from the Lisbon Summit, 2000 (Hills, Grand and Piachaud, 2002). The European Council set up a new strategic goal for the Union of advancing a completely developed knowledge-based economy for the first decade of the 21st century. As a conclusion of the summit, the EU member states committed to adopting the promotion of social cohesion and inclusion as a strategic goal. From this point, the concept is embedded in the policy of EU countries; ‘social inclusion and exclusion are prominent concepts in European discourse’ (Warschauer, 2003a: 9). Nearly half a year later, in October 2000, the fourth in a series of NTIA reports titled *Falling through the Net: Toward Digital Inclusion—a Report on American’s Access to Technology Tools* engaged with this concept. Hereafter, since the Lisbon Summit and the fourth NTIA report took place, the concept of social inclusion has permeated discussions of the digital divide.

As Selwyn (2002) observes, ‘in many ways the digital divide can be seen as a practical embodiment of the wider theme of “social inclusion” recently prominent in policy making throughout center-left governments in Western nations’ (Selwyn, 2002: 4, emphasis in original). He continues that ‘the notion of “digital exclusion” first emerged with regard to the technological disparity between developed and developing countries, within Western advanced capitalist societies the international focus of these debates quickly gravitated towards the issue of technological inequalities *within* individual countries’ (ibid, italics and emphasis in original).

Warschauer (2003a: 211-213) proposes a framework of social inclusion for policymakers and researchers. First of all, analysis of the problem—the digital divide—‘must begin with examination of social structures, social problems, social organisation, and social relations rather than with an accounting of computer equipment and Internet lines’. Secondly, once the problems are identified, programmes for bridging the digital divide ‘should be based on a systemic approach that recognises the primacy of social structure and promotes the capacity of individuals or organisations for ongoing social change through innovation of those structures using technology’. Thirdly, to ensure the programmes work well, it is crucial to exploit the catalytic effects of ICT. That is, understanding the social interactions that surround the technology. Fourthly, the leaders’ visions are of great importance for the success of the programmes. Fifthly, flexible programmes have more room for modification. Finally, governments need to intervene properly in promoting higher rates of access, because depending solely on market forces is insufficient.

4.3.4 Social Capital

A related concern to social inclusion is social capital/technological capital. Simply put, social capital refers to ‘network ties of goodwill, mutual support, shared language, shared norms, social trust, and a sense of mutual obligation that people can derive value from’ (Huysman and Wulf, 2004: 1). With this definition, social capital is also about ‘the value derived from being a member of a society or community’ (Huysman and Wulf, 2004:1).

The current discussion on social capital can be categorised into two traditions—the Marxist and communitarian traditions. Regarding social capital as one of several capital forms, the Marxist approach, represented by French sociologist Pierre Bourdieu, is interested in the way social capital shapes the social world, ‘especially those aspects of a class struggle and class nature’ (Huysman and Wulf, 2004: 2). The Communitarian approach, contrasting to the conflict perspective of the Marxist tradition, emphasizes the mutual support and trust within a community, which is seen as ‘voluntaristic social units that promote the harmonic development of organisations and society as a whole’ (Huysman and Wulf, 2004: 3). This approach put an emphasis on unity and collectivism. There is an obvious distinction between insiders and outsiders in this tradition.

While the analysis of social capital has been grounded so far in the relationship between individual actors or between an individual actor and a social aggregate, Putnam (1993,

2000) equates social capital with the level of civic engagement in general. He applies the concept of social capital to cities, regions, and whole nations, and on this basis, understands social capital as the set of properties (e.g., norms, levels of trust, or social networks) associated with a social entity that enables joint activities and conception for mutual benefit. Putnam's perspective necessitates the questions, which interaction exists between the level of civic engagement and the use as well as appropriation of information technology? (Huysman and Wulf, 2004: 4-5).

Selwyn (2002) adopts three forms of capital from Bourdieu—economic, cultural³⁸ and social—to construct a comprehensive model for investigating the digital divide, which can 'identify the effect of different forms of capital in all its different forms on individuals' and groups' ability to make meaningful use of information and communications technologies' (Selwyn, 2002: 13). Without denying the importance of economic capital, Selwyn emphasises the key role of cultural and social capital.

Beyond the economic and cultural capital, social capital is a more complicated form of capital, which 'can be seen as social obligations or connections between an individual and networks of other significant individuals (Selwyn, 2002: 14). Mariscal has argued that social capital perspective is important for understanding and overcoming digital divide. The social capital perspective 'provides a useful analytical lens that identifies the potential benefits of IT access and in doing so offers useful information for the design of a policy that integrates the needs and restraints of the users' (Mariscal, 2005: 415). 'New empirical studies provide some evidence as to the importance of IT access not only as a means for acquiring information but also as a catalyst for cooperation within a community and thus as an instrument for building social capital. Social capital, as empirical political science studies show, can have a significant impact on development' (Mariscal, 2005: 415).

'Fundamentally, a policy that seeks to address the digital divide in a developing country must face the lack of human knowledge. Accumulated knowledge, learning by doing over time, represents the most significant factor in the ability to implement new technologies in the context of a developing country' (Mariscal, 2005: 416). 'Again it is useful to consider the social capital concept as a mechanism of social interaction, where community leaders teach others the basic skills to use these new technologies to address community needs, thus broadening the available pool of social capital' (Mariscal, 2005:

³⁸ Cultural capital in Bourdieu's work (1986) refers to the education, which is equally important while discussing the digital divide

When connecting ICTs and social capital, some scholars create a novel term—technological capital—to denote the fundamental significance of ICTs in society (Selwyn, 2002; Hesketh & Selwyn, 1999; Howard, 1992). The term ‘technological capital’ is a proliferation and an addition to Bourdieu’s capital forms—culture, economic and social—in the information era, but works on the basis of them. Ownership of not merely technology but also technological capital may facilitate individuals to make decisions about their own choices in a well-informed environment, which the next framework ‘human rights’ elucidates.

4.3.5 Human Rights/ Right to Communicate/ Citizenship

The connection of human rights and the digital divide was popularised in the WSIS. Although this claim does not provide a definite scheme for practical policy-making, many scholars have endeavoured to coordinate the concept ‘human rights’ with that of the information society. The efforts of such scholars from the standpoint of coupling human rights and communication involve tracing back to precedent international documents regarding human rights (e.g. Hamelink, 2003; McIver *et al.*, 2003). They argue that human rights exist already in those documents such as the *Universal Declaration of Human Rights* in 1948 and the *Vienna World Conference on Human Rights* in 1993. Moreover, they analyse and synthesise the interpretation of human rights in these documents in the hope of mapping a comprehensive and workable definition of human rights to be applied in the information society, particularly as a method of policy implementation in bridging the digital divide. They attempt to ‘address information rights within a comprehensive human right framework’ (McIver *et al.*, 2003). Furthermore, they distinguish an ‘information right’ from ‘the right to communication’, with the argument that ‘the right to communication’ ‘is perceived by its protagonists as more fundamental than the information rights presently accorded by international law’ (Hamelink, 2003: 121).

Hamelink, the proponent in this issue who holds positions as a communication scholar and policy advisor for several international organisations, such as UNESCO, and national development in developing countries, bases his core argument regarding human rights in the information society on ‘the right to communication’ with the emphasis on ‘interactive communication’. He argues that ‘communication is a fundamental social process, a basic human need and the foundation of all social organisations’ (Hamelink,

2003: 121). Complementary to Hamelink's conceptualisation of the right to communication as interactive communication, McIver *et al.* (2003) suggests the right to communicate is a participatory and positive right, which applies to all groups and individuals.

Mansell's research (2002) suggests transferring digital divides to digital entitlements, which places more emphasis on the conceptualisation of a 'right to communicate', and call for a 'rights-based' policy approach. This approach may be used to remedy the mainstream discussion on new media policy that over emphasises 'market dynamics, governance procedures and regulation of the new technologies and services' as well as presume that 'the relationship between the new media and the citizen is beneficial' (Mansell, 2002: 409). She argues that the existing policy debate on the digital divide focuses overwhelmingly on the macro dimension, e.g. technology access and social exclusion, but that a narrow conception of capabilities gains less attention. Therefore, she recommends that the digital divide policy should shift its focus from the macro to the micro level, paying more attention to the individual capability that encompasses 'forms of learning and cognitive development that are necessary for making sense of a social world of on-line spaces created by the new media' (Mansell, 2002: 408). This is what she defines as digital entitlement, which corresponds with the call for a human right to communicate.

Moreover, the call for human rights also includes the concept of 'citizenship'. Loader (1998) identifies two types of relationship between government and citizenship—citizens and consumers. Citizens are those that actively participate 'in planning and decision making' (Loader, 1998: 165), while consumers are 'the users of these public services and regulations, who need information to exercise choice and control over their personal situations' (Loader, 1998: 165). As mentioned above, the mainstream discussion on new media policy that emphasises market dynamics takes the people may use ICTs as producers or consumers. It may be not crucial for all to be signed up. However, citizenship perspective requires us all to have access to public service and also to have access to information needed for people to come to informed choices in democracy.

4.4 Conclusion

As discussed above, many of the perspectives on bridging the digital divide are supply side driven, such as the 'national competitiveness' and the 'ICT-for-development

perspective' (Mariscal, 2005), while paying little attention to the need for citizens. Furthermore, the perspectives presented above to a greater or less extent contain an implicit assumption—the *necessity of digital technology, and its direct contribution to the information society*. The primary assumption behind the issue of bridging the digital divide is that the Internet is a public good. The main rhetoric on the relationship between ICTs and societies tends to encourage the use of ICTs to sustain national competitiveness and steer economic growth. In this case, the discussion on the relationship between ICTs and societies are inclined to be macro-level, national-competition, and nation-centred.

Although the international organisations established by the wealthy nations aim to promote digital divide policy through which to sustain a stable, global economic growth in their own interests, the emerging varieties of rhetoric on digital divide policy debate may affect subsequent policy making and implementation. As is shown above, we do observe that there is an nuance in the trend of the digital divide policy debate—from macro to micro, from national competitiveness to human rights, from nation-centred to people centred—recognised by international organisations. The means adopted to solve the divide may seem similar; however, different motivations may be discriminated. Namely, focusing on national competitiveness may merely stimulate the construction of infrastructure, while emphasis on individual welfare may go beyond technology acquisition to provide individuals with the capabilities they need in using technology.

Currently, we observe a shift in the discursive frameworks on the digital divide policy debate within international/regional organisations. I also find that there exist mainstream assumptions on the relationship between technologies and societies, e.g. technological optimism and utopianism. As mentioned in Chapter 2, contexts may affect the interpretation of the digital divide as well as subsequent policy making and implementation. The contexts addressed in this thesis are not only the wider, international/regional organisations, but also the national contexts of the settings of my case studies. Thus, Chapter 5 will move on to depict and scrutinise my first case study—China. I will investigate China's national context in which the digital divide is interpreted and digital divide policy is made. This analysis of national context and currently synthesised discursive frameworks will be combined to underpin the empirical study in China. I will elucidate how international and national contexts are entwined and appropriated in national digital divide policy.

Chapter 5

China's National Context for Bridging the Digital Divide

Drawing upon the concept of context from within an interpretive policy research framework, this chapter deals with Chinese national contexts in which the digital divide and corresponding policies have emerged. Section 5.1 deals with geo-economic structural and political contexts, which elucidate the emergence of the digital divide. It then presents the situation of unbalanced ICTs development within geo-economic structural and political contexts. Section 5.2 and 5.3, addressing economic policy concerns and institutional reforms, provide a background understanding of the fostering of digital divide policy and relevant ongoing debates about solutions to bridging the digital divide in China. Section 5.4 concludes this chapter.

5.1 Geo-Economic Structure—Regionally Unbalanced Development

If the original motivation of the digital divide in developing countries was about the prospect of a gap opening up between developed and developing countries, national digital divide policies have been primarily concerned with uneven economic and technological development within a country.

Concepts of dual economic structure often refer to the dual structure of developing economies—the coexistence of modern industry in urban areas with traditional agricultural practice (Dong, 1992: 1). In China the dual economy is presented by the fact that the economy of the eastern/coastal/urban regions surpasses the western/interior/rural ones. Furthermore, the dual economic structure is also reflected in the demographic distribution and employment structure (Dong, 1992: 2). As my interviewee, the Director of Internet Development and Research Centre in CASS, mentioned below, in China, economic division is one of the main reasons for the digital divide. He states,

The issue of the digital divide reflects China's economic condition in terms of a dual economy, which represents the divides between rural/urban, western/eastern areas. Because the economic development in these two contrasting areas is of significant divergence, the divide of ICT development is obvious, which is the so-called digital divide in China. (Personal Interview, CH01. April 2005)

This split between regions can be traced back to the structural context and previous economic development policy preferences of different leaders during the past three decades. Here I generalise the policy preferences of three-generations of leaders in China: each of them characterises the features of policy concerns during their ruling periods.³⁹

The Reform and Open Door Policy in 1978 was the watershed of China's economic transformation from a socialist economy to a more market-oriented economy. Prior to the 1978 reform and open-door era, Mao Zedong adopted the strategy of balanced development, supporting and constructing western China with an economic layout in proportion. However, Mao's strategy did not allow China to 'leapfrog' in terms of economic developments. It was only after the 1978 reform was launched that China's economic growth achieved the goal of 'catch up with' or 'leapfrogging' (discussion of this term will be provided in Chapter 6) the western countries with gross domestic product (GDP) growing at an average annual rate more than 9 percent. This may be also due to the fact that 'Mao's policy explicitly prioritised matters of ideology over economic pragmatism. Economic development became tangled up with political movements' (Shen, 1999: 10). Therefore the policies Mao enforced finally 'resulted in fluctuations in economic development' (Shen, 1999: 10).

Mao's successor Deng Xiaoping, learning lessons from previous experiences and absorbing China's national realities, applied the strategy of unbalanced development. He offered the famous proposition of 'Two Important Matters' (*liang ge da ju*, 兩個大局), which means that the Chinese government would give priority to developing the eastern/coastal area first. After the eastern area had been developed, then it would help and drive the development of the western area. However, unsurprisingly, in the course of achieving this development goal, uneven development inside China resulted, and this regional disparity has now become a big issue in contemporary China.

The significance of Deng's strategy of national development in China can be located in the Five-Year National Plans (see Figure 5.3). Throughout the Sixth and Seventh Five-Year Plans (1981-1985 and 1986-1990 respectively; detailed accounts of Five-Year

³⁹ This observation corresponds to the argument proposed by an influential Chinese economist, Hu Angang. In his co-authored book with Wang Shaoguang titled *The Political Economy of Uneven Development: the Case of China* (1999), they argue that 'economic factors alone are indeterminate in their effects on regional disparities. Instead, the central government's regional policy preferences and its extractive capacity are the key factors shaping the regional distribution of investment resources' (Lance L. P. Gore, 2000, Book Review, *The China Journal*, 44:186-187).

Plans are presented later on), Deng's 'Two Important Matters' strategy dominated the policy of national development. However, Deng's expectation was not realised at this stage; the western/interior regions did not catch up with the first-developed coastal regions. On the contrary, they lagged far behind.

Mao's and Deng's strategies of national development neither made impressive progress in raising China's GDP, nor brought about the even development within China. 'The wrenching collapse of Mao's economic initiatives and Deng's return to greater market rationality exacerbated regional disparities and the urban-rural split more generally' (Wilson, 2004: 273). Telecommunications development exemplified the uneven development between regions. 'Over these years, the urban-rural telephone gap grew again rather quickly' (Harwit, 2004: 1016).

In the 1990s, Jiang Zemin, the then general secretary of the Party, drew attention to the unbalanced development between regions. This concern was also represented in the proposal of the Eighth Five-Year Plan, which 'recommended that the labor be rationally divided and development coordinated between regions' (Lai, 2002: 435). To modify the shortcomings of Deng Xiaoping's developmental strategy (Two Important Matters), Jiang Zemin paid more attention to the reduction of the regional difference. With the inception of the Ninth Five-Year Plan (1996-2000), Jiang announced that the unbalanced development would be modified by 2000. Hence, in addition to adopting Deng's strategy, Jiang also actualised the western development strategy, i.e. 'Go West'. Thereafter, Premier Zhu Rongji once again emphasised the importance of balanced development within China. Later on, the proposal of the Ninth Five-Year Plan included the principle of reducing the developmental gap between regions. With Jiang Zemin's policy focus turning its attention to rural areas, telecommunications development within less developed regions has made slow but steady progress since the mid-1990s.

Year period (Policy highlights)	Five-Year Plan	Focus/Content
1953-1957	First	Agriculture/ Heavy industries
1958-1962 (Great Leap Forward)	Second	Agriculture/ Heavy industries
1966-1970 (Cultural Revolution) (‘Walking on two legs’ policy)	Third	Agriculture/ National defense
1971-1975	Fourth	Agriculture/ Industries (Mining, etc.)
1976-1980 (Mao and Zhou died; Deng began the reform policy in 1978)	Fifth	Light industry (the first time emphasis was placed on light rather than heavy industry)
1981-1985 (Four Modernisations)	Sixth	Developing the eastern coastal regions Developing telecommunications software market
1986-1990 (The New Long March)	Seventh	Developing the eastern coastal regions Developing telecommunications software market
1991-1995 (Concerns about the uneven development)	Eighth	Even development inside China Consideration of the issue of the digital divide when making the Ninth Five-Year Plan
1996-2000 (From a planned economy to a ‘socialist market economy’)	Ninth	Informatisation Embarking on the implementation of digital divide policy
2001-2005	Tenth	Informatisation Continuing the implementation of digital divide policy
2006-2010	Eleventh	Informatisation Continuing the implementation of digital divide policy

Figure 5.1 Economic Focuses Shifted over Five-Year Plans (Source: Compiled by the author)

The development patterns in China, i.e. the dual economy, exacerbate the rural regions' disadvantages (Nicholas, 2003) in telecommunication penetration. In the course of almost every interview that I conducted in Beijing, I was consistently reminded by my interviewees that 'Beijing is not China'. They alerted me not to be misled by the blossoming telecommunication development in big cities, such as Beijing. They furthermore pointed out the fact that poorer regions are also facing the toughest 'Three Nongs'⁴⁰ issues—agriculture, farmers, and villages. What concerns my interviewees is the uneven regional development in general and the digital divide in particular in modern China.

According to several surveys conducted by MII, CNNIC, and other institutions (see Figure 5.2, 5.3, and 5.4), the development in telecommunication, taking penetration rate as an example, depends on the wealth of citizens to a very large extent. Meanwhile in China, economic development parallels regional development. The wealthier eastern/coastal regions have a higher telecommunication penetration rate than the less wealthy western regions. In terms of the Internet penetration, according to the latest report by CNNIC in July 2007, the number of Chinese netizens has reached 162 million, only next to the 211 million of the United States, ranking the second in the world (*The Twentieth Survey Report*, CNNIC, 2007). However, the CNNIC report worries that the divide between urban and rural regions will be wider in the near future.

The regionally uneven development facing China is even worse in the information era, which is reflected in the divides between telecommunication infrastructures and implementation. The Chinese government has been keen to reduce an emerging 'fourth divide', i.e. the digital divide, in addition to the other three divides in China—urban vs. rural, workers vs. farmers, and intellectuals vs. farmers. Additionally, the Chinese government is expecting informatisation to drive industrialisation, which is the political rhetoric in China; 'industrialisation supported by informatisation'. In other words, although China did not catch up with advanced countries in the first and second phases of industrialisation, it will now seize the chance to surpass, rather than simply catch up with, the advanced ones.

⁴⁰ The three terms 'agriculture, farmers and villages' all begin with the pronunciation 'nong'—nong yie, nong ming, nong cun—in Chinese. Therefore, the Chinese government takes 'Three Nongs' for short while addressing this issue.

	Fixed phones			Mobile phones
	Total	Urban	Rural	
Eastern China	17651.9 (48.5%)	12680.8 (50.9%)	4971.1 (43.1%)	22134.9 (50.6%)
Central China	11343.5 (31.1%)	7062.1 (28.4%)	4281.4 (37.2%)	12559.2 (28.7%)
Western China	7433.1 (20.4%)	5168.7 (20.7%)	2264.4 (19.7%)	9053.4 (20.7%)
China as a Whole	36428.5 (100%)	24911.6 (100%)	11516.9 (100%)	43747.5 (100%)

Figure 5.2 Inter-Regional Divides in Fixed and Mobile Phone Penetrations (as of August 2006)
(Unit: million household) (Source: http://www.mii.gov.cn/art/2006/09/21/art_27_25044.html; accessed on 11/12/2007, compiled by the author)

	Urban (%)	Rural (%)	Nation (%)
2005 December	16.9	2.6	8.5
2006 June	18.0	3.0	9.4
+/- percentage	1.1	0.4	0.9

Figure 5.3 Rural/Urban Divides in Internet Penetration (as of June 2006)
(Source: CNNIC, the 18th Survey Report (released on 08/08/2006), accessed on 11/12/2007, <http://www.cnnic.net.cn/download/2006/18threport-en.pdf>)

	Eastern China (%)	Central China (%)	Western China (%)	Nation (%)
2005 December	13.0	5.7	6.0	8.5
June 2006	14.0	6.5	6.9	9.4
+/- percentage	1.0	0.8	0.9	0.9

Figure 5.4 Inter-Regional Divides in Internet Penetration Rate (as of June 2006)
Source: CNNIC, the 18th Survey Report (released on 08/08/2006), accessed on 11/12/2007, <http://www.cnnic.net.cn/download/2006/18threport-en.pdf>

5.2 Adopting National Economic Policy to Bridge the Domestic Gap

China's strategy to achieve even national development and catch-up with advanced countries is embodied in its 'Twin-Track Strategy', which involves merging industrialisation and informatisation (Dai, 2002: 141). In this section, I will present China's national development policy, evolving in a series of Five-Year Plans (see Figure 5.1 and 5.5), tracing back to the First Five-Year plan adopted in the early stages of the social Republic until now, the Eleventh. By outlining the history of China's development focus and the way that it was transformed from industrialisation to informatisation, I provide an outline of how China's national context may impact on its subsequent digital divide policy-making and implementation.

5.2.1 Economic Development Strategy before the 1978 Reform

The Chinese government has been setting up national economic development plans of a five-year interval since 1953. The Five Year Plan was an attempt by China to boost her industry and set her on the path to become a world-class power, and also aimed at ameliorating national poverty and raising economic growth. When Mao came to power in 1949, China was many years behind the industrial nations of the world in economic and technological development. In December 1949, Mao met Stalin in Moscow to sign the Treaty of Friendship, Alliance and Mutual Assistance. This treaty gave China money and technical assistance to modernise its industry. Though the money received from Russia was relatively modest (US\$ 300 million over five years), Russia did provide 10,000 engineers to boost China's industry and therefore her economy (Heinzig, 2004). Influenced by the Russian engineers as well as by the success of Stalin's Five Year Plans, China introduced her own Five Year Plan in 1953. The goal of the First Five-Year Plan is obvious; 'the Chinese economy was to be transformed through a program of forced-draft industrialisation' (Volti, 1982: 34). Heavy industry was targeted in the plans from the outset. The early Five Year Plans attempted to tackle steel, coal and iron production.

Apart from the aid from the Soviet Union, Chinese leaders chose a leap-forward strategy that also revolved around the development of heavy industries during this period of time. However, at that time China was a country which lacked capital but which had an abundance of labour power. Under the scheme of the leap-forward strategy, China needed to adopt a centrally planned economy, which meant that the government controlled every economic component, e.g. prices, raw materials, labour,

etc., even the firms' production decisions were decided by the government. As a result, this economic strategy was deemed to fail due to its problems of central planning and lack of incentives (Lin *et al.*, 1996). This heavy-industry-oriented development strategy was regarded as the fundamental reason that China could not achieve sustained development before the 1978 reform (Lin *et al.*, 1996). Afterwards, with the political power shift and Mao's successor Deng Xiaoping adopting an open-door development strategy, the target of the plans has shifted from heavy industries to light industries and to information industries.

5.2.2 Economic Development Strategy after the 1978 Reform

China's industrialisation and informatisation have developed concurrently and 'both processes are in turn closely related to the penetration of the Chinese economy by market forces (Mueller and Tan, 1997:12-13). As far as the development process of both industrialisation and informatisation are concerned, contemporary patterns of higher technology industrialisation creates a demand for mobile labour, capital, and products, whilst informatisation creates more convenient communication to meet the demand of this industrialisation (Mueller and Tan, 1997:13). This conforms to China's definitions of informatisation as mentioned in Chapter 1 that in China, 'informatisation' indicates 'process, progress, and duration of all the way from the industry society to the information society', as well as 'all the means to accelerate the process from the information society'⁴¹. This may be one of the fundamental reasons why China shifted its development focus to telecommunications to simultaneously develop industrialisation and informatisation as well as complete industrialisation via informatisation.

Before the reform era, the telecommunications industry in China was funded solely by the government and the investment in telecommunications was limited. Taking the investment in fixed assets as an example, from 1949 to 1978 the total investment of China in the telecommunications sector was only US \$0.65 million (Shen, 1999); and there was only about 4 phones per 1000 people (ITU, 1986, cited in Shen, 1999) in 1978. These indicators show that the development of telecommunications technologies in China, especially the public network services, was impoverished. However, with the start of economic reform, the demand for business communications within China and with the world and for interpersonal communications began to rise and the under-development of telecommunications infrastructure became the bottleneck for

⁴¹ See footnote 9.

economic development. Taking this concern into consideration, the Chinese government devoted much more investment than before to the telecommunications sector. During the Sixth and Seventh Five Year Plans, investment rose from US\$ 0.65 million in the three decades prior to economic reform to US\$ 3.25 billion in one decade from 1981-1990 (Shen, 1999). With the huge investment in telecommunications, mobile phone usage also increased, and the Chinese government has now successfully connected 'information', 'economic growth' and 'high-tech telecommunication equipment' together in mass media and in public (Shen, 1999).

Thus, we can see that the Sixth Five-Year Plan (1981-1985) symbolises a transition from old-fashioned styles to a new one in economic growth; from one directed to extensive economic growth to one directed to intensive growth, from a centrally-planned economy to a 'socialist market economy'. The emerging informatisation alongside industrialisation is the other characteristic emerging from the Sixth Five-Year Plan onwards. During the period of the Sixth (1981-1985) and Seventh (1986-1990) Five-Year Plan, China embarked on the development of hardware in telecommunications technologies, and US\$ 3 billion was invested in telecommunications (Shen, 1999: 17). Since then annual investment has soared; and from 1985, the growth of telecommunications has outpaced GNP growth (Shen, 1999: 17). From the Ninth Five-Year Plan (1996-2000) onwards, China extended the development focus in telecommunications from merely hardware to services, which pinpointed its strategy in informatisation and the issue of the digital divide started to gained official and public attention.

As mentioned above, the Chinese government has successfully made connections between telecommunications and economic growth, which implies that telecommunications received much attention from the Chinese government because they are regarded as the driving force for economic development. 'Beginning with Deng Xiaoping's historic trip to Shenzhen in March 1992, China's reform-minded leadership recognised the importance of telecommunications infrastructure to the success of urgent economic growth. In 1992 and 1993, Minister Yang Taifang and subsequently Minister Wu Jichuan repeatedly emphasised the need to strengthen the administrative planning and control of telecommunications as the basis for all aspects of China's reform' (DeWoskin, 2001: 630).

The Chinese government's recognition of the importance of telecommunications can also been seen in the launch of relevant ministries. For example, 'the key organisation

for developing and planning the network was the Ministry of Posts and Telecommunications (MPT), established in November 1949, just a month after the founding of the People's Republic' (Harwit, 2007: 315). 'In early 1982, MPT minister Wen Minsheng announced that expansion of the country's telecommunications system would be a priority for developing the nation's economy' (Harwit, 2007: 317).

Furthermore, the emphasis upon the role of telecommunications in stimulating economic growth stems from the attitudes of Chinese leaders. 'The telecommunications sector had guidance and regulation by ministries that desired to see economic success. The key factor of market-driven efficiency, however, had been repressed during Mao's drives against what he saw as "capitalist revisionism". China's reform leaders in the 1980s would actively promote market forces, allowing the sector to make a mighty contribution to the country's drive towards industrial modernisation' (Harwit, 2007: 316).

From 1995 onwards, the Ninth Five-Year Plan put much emphasis on the infrastructures of Science and Technology. The programmes on bridging the digital divide aimed to upgrade national economic growth. Although digital divide policy in China seems very fragmented, we see how it is enacted and enforced in a nested national development plan, when it is viewed from this broader perspective. These 'fragmented' digital divide policies also exhibit features arising from the broader economic and policy context; they demonstrate digital divide policy concern with 'Chinese characteristics'.⁴²

Holding the belief that ICTs will help China to leapfrog into the information era, the Chinese central government established the *Informatisation Leading Group under the State Council* ' (abbreviated to *Leading Group* in this chapter) in 1996 to advance China's informatisation. *Leading Group* is an unprecedented, high-level administration for handling China's informatisation issues. To demonstrate China's strong determination to achieve complete informatisation in all domestic regions, the state Vice-Premier takes the position of chairman of the board; and the board is composed of twenty-two ministries. With the establishment of the Leading Group, the direction and principles of national informatisation construction was proposed. The tasks of national

⁴² The phrase 'Chinese characteristics' was first coined in 1982 by Deng Xiaoping within his programme of China's political reform, which was famously known as his commitment to 'building socialism with Chinese characteristics'. After this phrase was created as a political objective for China, it has been frequently used to highlight China's unique path on reforms in all fields. Adopting this phrase here, this chapter is focusing on the historical and current development retrospectively to analyse the policy process of bridging the digital divide.

informatisation were then addressed.

Since the *Leading Group* is in charge of the comprehensive informatisation of China, bridging the digital divide has rather straightforwardly been taken on board as one of its tasks. Eight ministries have been cooperating and sharing the projects for reducing the digital divide. Additionally, in 1997, the National Working Meeting of Informatisation was held in Shen Zhen to deploy the informatisation tasks in local governments. From then on, the task of informatisation has been rooted locally, trickling down from the highest central government to the local. Since then, the provincial informatisation centres have been established.

The Leading Group takes a very significant position in organising and coordinating the participant ministries in China's informatisation. Its main task is two fold—promoting China's information construction and maintaining national information security. In terms of the projects and policies on the digital divide, the participant ministries includes the *Office for West China Development*, the *Ministry of Education*, the *Ministry of Agriculture*, the *Ministry of Culture*, the *Minister of Commerce*, the *State Administration of Radio, Film and Television* (SARFT). The ministries mentioned above take responsibility for the division of labour.

5.3 Addressing/Focusing on Telecommunications Development

The assumption that telecommunications have impacts on a nation's economy has figured strongly both in policy-making and academic research (Wellenius, 1976; Gilling, 1975; Hardy, 1980), in particular within the context of developing countries. The logic underlying this assumption is that 'with telecommunications, some of the physical constraints on organisational communication can be removed in all sectors of the economy, permitting increased productivity through better management and administration' (Wellenius, 1977; cited in Hardy, 1980: 279). The removal of physical constraints and the increased ability of managers to communicate are assumed to aid the interaction between economic enterprises (Hardy, 1980: 279). Eventually, the impacts of telecommunications on the organisational level will further contribute to a nation's economic growth. China, seeing itself as a developing country, also hopes to catch up with advanced countries via the benefits that telecommunications bring to economic growth.

In practice, the Chinese government values telecommunications highly as a means of

opening the market via liberalisation and institutional change. And 'institutional evolution is the essential underpinning for strategies aimed at using advanced ICTs to stimulate economic growth' (Mansell, 2001: 293).

When the open-door policy was first implemented, the Chinese government began to open the telecommunications equipment market as early as the 1980s, in a state-controlled manner. However the service market was not open to the outside world until 1993 when it was required to allow China's accession to the World Trade Organisation (WTO). Many reasons account for the late opening of the telecommunications service market. First of all, the provision of telecommunications networks is costly, and it was presumed to prohibit competitive provision of landline service. With this consideration, public management perhaps may be the most efficient and effective method to achieve broader social and economic policy goals, e.g. equal access (Shen, 1999:15). The second reason may stem from the competition between ministries for resources and power (Foreword, in Mueller and Tan, 1997: xi). Third is the political dimension that controlling the means of information distribution is 'critical to public order and social stability' (Foreword, in Mueller and Tan, 1997: xi).

However, with China's eagerness to improve national economic development, competition and de-regulation have been at the heart of policy consideration. China is no exception in adopting liberalisation to catch up with this world trend in her telecommunications reform. This coincides with Mueller and Tan's (1997) observation that telecommunications reform may not be merely motivated by the objective of ICTs convergence, but also by the desire for national economic development, as this thesis discussed in Chapter 4 about the discourses of national competitiveness and ICTs for economic development is an example. This further supports the suggestion that the Chinese government imbue telecommunications with a crucial role in economic development as the concept 'informatisation' discussed in Chapter 1 on briefing China's domestic context.

In the promotion of telecommunications development, the Chinese government adopts a 'pragmatic' and 'utilitarian' manner (Shen and Williams, 2005). With the desire to stimulate economic growth, China made institutional changes to jump on the globally-circulated train of telecommunication de-regulation, competition, and privatisation from the mid-1990s onwards, in order to get connected to the global telecommunication market and play a role in world trade. This implies the logic that if China can increase the penetration rate of the telecommunications, then it will have

higher national economic growth rate. And if national economic growth rate rises, it also indicates that China wins the international competition.

China's telecommunication reform has attracted many scholars' attention. It is synthesised in terms of three components of market-orientated reforms, i.e. liberalisation—deregulation, competition, and privatisation (Laperrouza, 2007), which is similar to that in the US and UK in the 1990s. Accordingly, Xia and Lu (2005) summarise a three-phase liberalisation of telecommunications in China. This section borrows these three components combined with Xia and Lu's three-phase approach to describe China's institutional telecommunication reform from the mid-1990s onwards. These institutional changes serve as part of the national context, which has implications for the analysis of digital divide policy in the next chapter.

5.3.1 Competition and Privatisation (1994—)

Before the 1978 reform, when China was a socialist regime and different state-owned industries were under the central control of and belonged to specific governmental institutions. These institutions combined functions of a public operator and a regulator (Gao and Lyytinen, 2000: 721). After the 1978 reform, the Chinese government was aiming at transferring management functions from governmental bodies to industrial organisations (Gao and Lyytinen, 2000). One of the efforts that the Chinese government made towards telecommunications reform was competition. 'Competition' in the telecommunication market in China has two meanings. One indicates the termination of monopoly; and the other is to 'separate government function from business operation' (Xia and Lu, 2005:3). China's telecommunication reform began with market competition in 1993. The first step started with opening for competition nine non-basic telecommunication services, including radio paging, email service and the like (Liang and Zhang, 2000). The second step began in 1994 when a new company, China Unicom, was formally established. To present the government's determination to open the telecommunication market, also in 1994, what had been the Directorate General of Telecommunications (DGT) of the Ministry of Post and Telecommunications (MPT) was registered as a company under the name of China Telecom. DGT was changed from a functional department of MPT to an enterprise responsible for operating and managing MPT's fixed and mobile networks (MPT, 1996; cited in Gao and Lyytinen, 2000). This change denoted the termination of monopoly and the move forward to duopoly. Since then, the Chinese telecommunication market has not been solely occupied by China Telecom, but by competition between at least two companies.

After the re-organisation of telecommunication operators, there were six operators providing telephony services in the market, including China Telecom, China Netcom, China Mobile, China Unicom, China Satellite and China Railcom. The status of these six operators are 'state-owned private operators', which means that they are listed companies, but the state is the biggest shareholder (see Chapter 6) and they were assigned by Ministry of Information Industry (MII) to be responsible for bridging the digital divide via realising the policy goal of universal service. This will be further discussed in Chapter 6.

5.3.2 Deregulation—Birth of an Independent Regulator: MII (1998—)

In line with 'competition' as mentioned in the previous subsection, the Chinese government deregulated the telecommunications sector in the course of telecommunications reform. A significant event that took place in China's telecommunication regulatory reform was the birth of MII in 1998. Section 5.6.1 mentioned that DGT was registered as a company and committed to head-to-head competition with China Unicom. However, China Telecom was still just an administrative agency without providing real telecommunication services. The national long-distance network was actually operated by provincial and municipal Posts and Telecommunications Administrations (PTAs) that reported directly to MPT. In this case, the real competitor to China Unicom was not China Telecom, but MPT, which enjoyed dual status as a regulator and a player in the telecommunications market (Liang and Zhang, 2000; Gao, Lyytinen, 2000). The launch of MII also ended this unfair competition situation, and furthered the transition process (Yan and Pitt, 2002) in telecommunications.

The building of MII was also part of the national institutional re-organisation plan. The Chinese government underwent five institutional re-organisations after the reform era from 1978 to 2003 to improve its efficiency. The project of reorganisations aimed at making the government work more efficiently. It is under the third re-structuring scheme that MII was founded, in 1998. Meanwhile, the former ministries—Ministry of Posts & Telecommunications (MPT)⁴³ and Ministry of Electronic Industry (MEI) formed and were incorporated into MII. This incorporation presents the Chinese government's desire to promote convergence of prior fragmented administration (Gao,

⁴³ For detailed accounts on MPT refer to Mueller and Tan, 1997.

Lyytinen, 2000: 722). With this reorganisation, the new MII is a unit directly under the State Council, and it is primarily in charge of the national electronics and information products manufacturing, telecommunications and software industries, and information promotion of the national economy and social services.

The birth of MII was highly significant for several reasons. First of all, it displays the Chinese government's determination to create a transparent environment for competition via separating players from regulators in the Chinese telecommunication market. After the establishment of MII, the corporate function of building and managing the state telecommunication trunk line network has been transferred to MII and the function of managing industrial, materials and building enterprises has been delegated to enterprises as well.

Secondly, the positioning of MII also indicates a significant change in China's telecommunication market and brought about privatization. When the former MPT and MEI merged into MII, MII took the initiative to split China Telecom into two companies, the 'South' and the 'North', based on a geographical division. The 'North' was eventually merged with the then Netcom and Jitong and renamed China Netcom, while the 'South' inherited the original brand name China Telecom.

Thirdly, in addition to building an open market, MII also plays an important role in promoting national economic development by increasing the spread of telecommunications. This can be seen in MII's taking over the administrative function of the former State Leading Group of Information Industry and its General Office, which was charged with studying and drafting the information economy development plans.

Fourthly, one of the functions of MII's establishment is making and implementing policy to bridge the digital divide. Beyond each single, short term digital divide policy controlled by each of the individual ministries, MII takes responsibility for sorting out physical digital divides inside China, which means that MII is charged with bridging physical access only; the urgent issue at present being getting all remote villagers connected at least to telephones.

5.3.3 Universal Service

Deregulation does not mean that the economic role of government will be lessened, but

the government operates differently (Mosco, 1990: 38-40) from that in the regulatory era. Take the European Commission for example, 'in spite of its commitment to a reduction in regulation, the Commission has introduced a considerable number of directives, decisions, regulations, recommendations and resolutions in pursuit of its goals' (Mansell, 1993: 220). Therefore, learning from the lessons from western countries, deregulation of the telecommunication industry in China requires several related initiatives. In addition to competition and establishment of a cross-section antitrust regulatory agency (e.g. MII), implementing universal service is also necessary (Yu *et al.*, 2004) in order to make all citizens connect to basic telecommunications with an affordable cost.

The universal service policy is the most relevant to the interest of this thesis in investigating digital divide policy in China. Let us first go back to the history of universal service in the US. In 1878, Alexander Graham Bell proposed getting the telephone into every home, which was taken as the emergence of the concept of universal service (Compaine & Weinraub, 2001: 152). After that, the term 'universal service' gained a more concrete interpretation in the US, which meant incorporating the 'national telephone system into a geographically ubiquitous monopoly' (Muller & Schement, 2001: 121). In 1907, universal service was taken 'for telephone dialtone when AT&T first articulated its theme for the Bell system (Compaine & Weinraub, 2001: 148). In 1909, AT&T's annual report first included the statement 'One System, One Policy, Universal Service' (Compaine & Weinraub, 2001: 152). Theode Vail, the head of AT&T, coined this term and later submitted to government regulation to achieve this goal. Therefore, the term 'universal service' originated not as a public policy goal, but as an industrial strategy (Hudson, 2006: 307).

It was not until the early 1930s that the concept of universal service connected with telecommunications policy in the US. While suffering from the trauma of the Great Depression in the 1930s, the US government recognised that a universal telephone service as the next needed ubiquity (Compaine & Weinraub, 2001: 171). Consequently, in 1934, the concept of universal service was incorporated into the Communications Act (Compaine & Weinraub, 2001: 148). In the 1970s, the concept of universal service connected with household telephone penetration (Muller & Schement, 2001: 121) was officially noticed in policy.

With information and information communication technologies gaining more and more attention in the government and in the public, NTIA conducted a series of hearings on

universal access; a detailed account is provided in the following section. In 1995, the US vice President Al Gore made speeches about universal service at the G7 Information Summit and ITU World Telecommunication Development Conference respectively. During the G7 Information Summit, Gore said that the Clinton Administration proposed to make every classroom, every library, every hospital, and every clinic connect to the national and global information infrastructures. At the conference of ITU, Gore called for all nations of the world to cooperate in building GII founded on the principles of universal access, the right to communicate and diversity of expression (Compaine & Weinraub, 2001: 161-162).

Historically, it is clear that the concept of universal service was intended to apply to telephone access. It was in 1996 that the concept was extended in the Telecommunications Act to online services, including the Internet, and was no longer confined to the basic dial tone. The Federal Communications Commission, governmental regulatory agencies, and industry players organised the universal service fund for the universal service policy, however the notion of what is to be covered by this fund is open to question (Compaine & Weinraub, 2001: 147-148). Meanwhile, the Telecommunications Act specified institutions—schools, libraries and rural health centers—rather than households as the means through which the services should be made accessible (Hudson, 2006: 308).

With the scope of universal service extended, the categories that the policy covered have been enlarged from the universal service of the telephone from the outset, and then to education, electric power, and information and telecommunications services eventually (Muller & Schement, 2001). The main literature that has just been discussed on universal service focused on two aspects. First of all, it was based on the assumption that telephone penetration levels are determined primarily by the price of a basic monthly subscription. Secondly, it was preoccupied with the issue of how large the subsidies to local access are and how to finance them in a competitive environment (Muller & Schement, 2001: 123)

The digital divide concern in China builds upon the established debate—universal service—related to telecommunications and uneven development. In China, one strategy for providing universal service involves first narrowing regional divides in penetration level (Yu *et al.*, 2004:729). The Chinese government has been taking a series of actions in building a seemingly well-prepared environment for telecommunication reform, and the legal dimensions are no exception. In September 2000 the government

issued the 'Telecommunication Act', which for the first time encompassed all telecommunication-related issues as well as providing guidelines for implementing universal service policy.

According to the experiences of advanced countries, the policy goal of universal service on telephony has to be implemented before telecommunication liberalisation can be achieved. Universal service to a large extent implies social welfare, which would require the intervention of the government. In the time that telephony infrastructure and service was controlled by the government, the government could adopt indirect intervention to implement the policy goal. Accordingly, in the time that telephony infrastructure and service was controlled by monopoly, the government could indirectly ask the operator to assure universal service.

However, China is now standing at a watershed between new and old telecommunication markets, facing the termination of an old-style monopoly or duopoly and opening up a new competitive environment. It is regulated competition that we see in the West. Meanwhile, the Chinese government is also confronted with the tough task of realising the policy goal of universal service via raising telephony penetration as its first step in bridging the digital divide. In practice, upgrading competitiveness and meanwhile providing universal service produce conflicting goals for existing telecommunication operators. In Chapter 6, I will present the policy that MII has adopted to solve this difficulty.

5.4 Conclusion

This chapter has explored the national contexts within which the case study of China will be analysed in the next chapter. I presented the Chinese national contexts from many different angles, i.e. geographically uneven development, economic development divides between regions, and policy inclination to the eastern coastal region, to show an apparent regional divide inside China. I also described how the existing unbalanced development has been exacerbated in the era of informatisation.

The action taken to ameliorate this development outcome in China predominately stems from the deep belief that technology will eventually resolve this uneven development. In the era of industrialisation, first the heavy and the light industries represented China's dream of speeding development. From the mid-1990s on, ICTs have replaced heavy and light industries as the cure-all for development. The innovation and development of

ICTs, as well as informatisation, are all promoted in order to catch up with advanced countries and to join the list of world powers. From this narrow development perspective, any hindrance to development must be removed. It is within this narrow 'development driven' framework that the relevant digital divide policies are gradually made and implemented within individual ministries based on their own areas of responsibility.

With the determination to develop telecommunications, especially the telecommunications service market, the Chinese government has made much effort towards liberalisation via competition, deregulation, and privatisation. However, at the current stage of telecommunication development in China, universal telephone service is still the main policy concern in order to bridge the digital divide. However, concerning the institutional context, the Chinese government is in a predicament—between on the one hand realization of universal service to bridge the digital divide between regions and on the other securing new investments and cheapening access via a competitive and privatized telecommunications market. Therefore, how the Chinese government implements the policy of universal service to bridge the digital divide and upgrade its (economic) development on the one hand, and on the other encourages and sustains fair competition and privatization represents a great challenge.

The following chapter will be devoted to empirical data analysis in the case study of China. The discursive framework of the digital divide will be elucidated first. I will then scrutinize a representative case *Cun Cun Tong Dianhua* to investigate how this policy was made and has been implemented by means of a political approach. From this case study, I will analyse how the discursive framework shaped in the international (Chapter 4) as well as national contexts (Chapter 5) delimits and demarcates the institution(s) involved in *Cun Cun Tong Dianhua* policy. Moreover, a detailed analysis of the predicaments this policy has encountered during implementation will be provided.

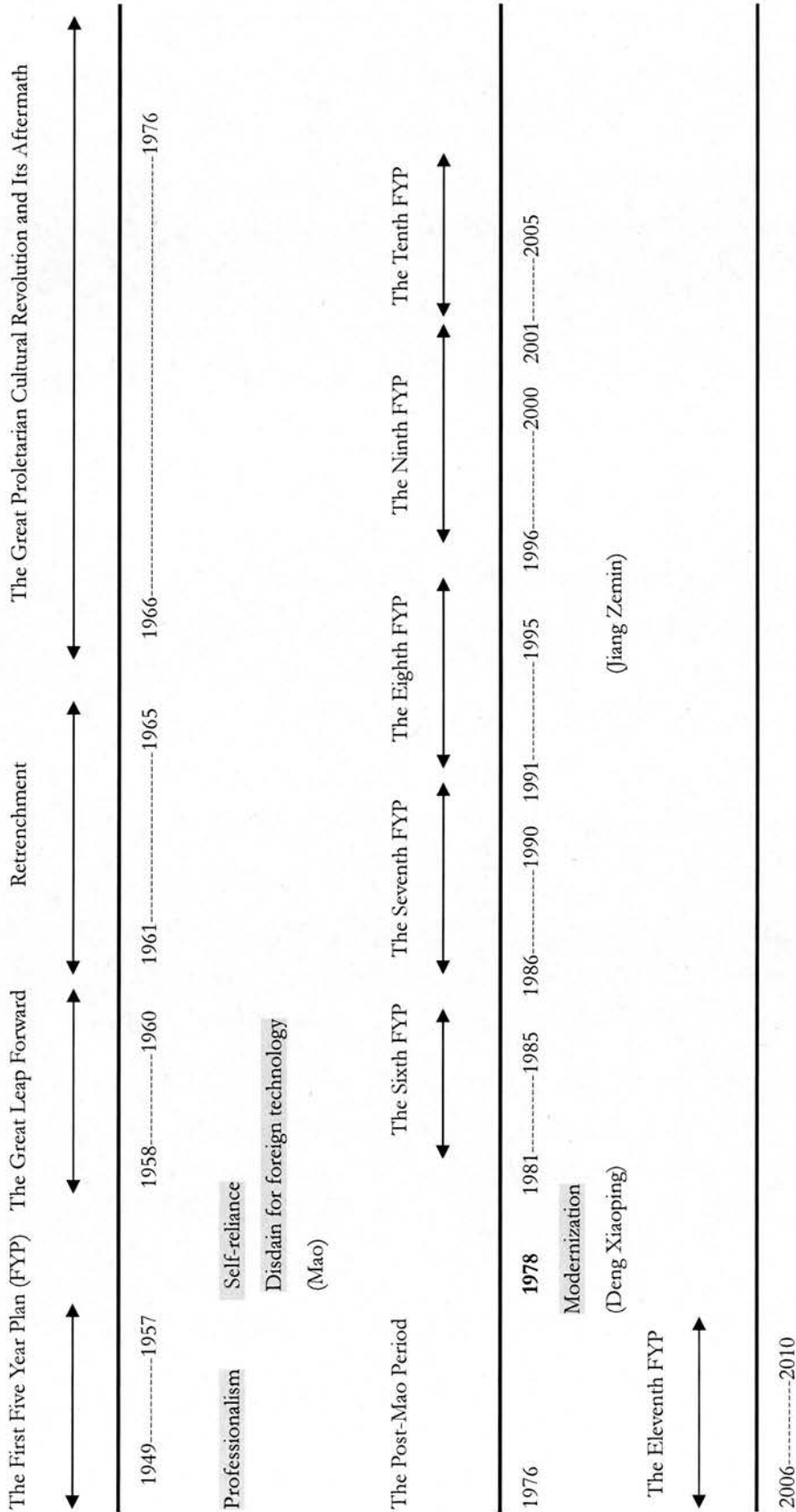


Figure 5.5 Timetable of Economic Planning and Reform in China (1949 onwards)

Chapter 6

Digital Divide Policy-Making in China

This chapter provides an empirical analysis of the discursive framework of the digital divide and the consequent policy which was made in response to the issue of the divide in China, within the national context presented in Chapter 5. Section 6.1 adopts the concept of domestication developed in Chapter 2 to analyse the discursive framing of digital divide policy in China's national context. Section 6.2 outlines the landscape of China's digital divide related policy and participant ministries. It suggests that, one way of understanding the Chinese government's decision to involve a wide range of ministries in the policy-making process is that this enabled them to display their commitment to addressing this policy issue. However, at the same time, by revealing the complexity of the policy landscape, I avoid suggesting that it was determined in an entirely harmonious or straightforward manner. This point is addressed in section 6.3, which highlights the tensions which existed between the participating ministries concerning the interpretation of the policy issues at stake.

In section 6.3, I take an ongoing policy—*Cun Cun Tong Dianhua* (村村通電話)—as my case study to deal with the main concern of this thesis—how the interpretation of the digital divide contributes to policy-making and implementation as well as which ministry is assigned to be in charge of the policy implementation. In the first place, this case shows how the narrow conceptualisation of national development, i.e. in terms of economic development and national competition, is embodied in the policy implementation under the political means '*fen pian bao gan*' (分片包幹) by which it takes place. Literally, *fen pian bao gan* means dividing up the work (*fen pian*) and assigning a part to each individual or group (*bao gan*). Additionally, this case shows the debate between actors. Thirdly, it draws attention to China's difficulties as it tries to catch up with advanced countries in industrialisation and prevail in the international competition concerning informatisation. Section 6.4 concludes this chapter.

6.1 Domestication of the Digital Divide

In Chapter 2, the idea of domestication was suggested as a means of analysing how a concept is appropriated and embedded within a national context. Furthermore, in Chapter 4, the history of the term 'digital divide' from the US and EU was discussed. In this section, I utilise the concept of 'domestication' to analyse how the term 'digital

divide’ was appropriated from the international level to China. In applying ‘domestication’ in this thesis, I develop it into three levels—1) the linguistic appropriation; 2) fit to national policy discourse; and 3) fit to national setting—national economic/social context (see Figure 6.1).

Although the term ‘digital divide’ has existed for one decade since its inception in the US in the mid-1990s, the ideas behind this term are still of tremendous diversity. In Chapter 4, I discussed the different ideas behind this term and revealed four categories of discourses on the digital divide, ranging from national development to human rights, from nation-centred to citizen-centred, from technology equipment to users’ skills, within the international context. Undoubtedly, the interpretation of the digital divide in China is also intertwined with national and international contexts. In this section, I will present and discuss how this term is named, and investigate the discursive frameworks employed in defining the digital divide in China. The data analysed in this subsection are collected from personal interviews, newspapers, and policy documents. Because of research ethics, as I have discussed in Chapter 3, the data collected and used from personal interviews will not show the interviewee’s personal information, except something about their positions within the government (see Appendix).

	Types	Practices
Level One	Linguistic Appropriation	The Chinese government selected a Chinese term ‘ <i>shu zi hong gou</i> ’ to refer to the English term ‘ <i>digital divide</i> ’
Level Two	Fit to National Policy Discourse	Promoting national competitiveness and
Level Three	Fit to the National Setting—Material Economic/Social Context	ICT for Development discourses within China’s national contexts

Figure 6.1 Three Levels of Domestication

6.1.1 Domestication of the Term ‘Digital Divide’

In this subsection, I deal with the first level of domestication. The idea of ‘domestication’ here is applied in the analysis of how the digital divide is linguistically translated by the Chinese government to make it belong to China as well as matching it to China’s values. Additionally, the process of selecting a Chinese term for the digital divide also shows that a group of high-ranked policy-makers defined the policy problem.

According to the interviews I conducted in China, Chinese policymakers identified three reasons for the Chinese government to cultivate a Chinese term to define the phenomenon of the digital divide between countries and within China. First of all, when the fieldwork of this research was conducted in 2005-2006 in China, the concept of the digital divide had only appeared for one decade in the US; therefore, it is too novel to be described by existing Chinese terms. Additionally, the term 'digital divide' was coined in western countries, e.g. the US, in English, and then spread internationally and eventually to less developed countries, which means that, in Chinese the concept of the digital divide was a foreign concept and had to be translated to match the domestic phenomenon.⁴⁴

Thirdly, the ability to determine a formal term and impose it on policy making and on media reporting is an important aspect of power (Schoenhals, 1992). Manipulating and formalising political language is one of the tools the CCP uses to exert its power (Schoenhals, 1992). Drawing on Schoenhals' work (1992), he states that the formalization of language usually has a fixed form, and is applied by successors as they are making political speech or as they are creating new policy. Formalizing political language has its tradition tracing back to premodern China. The first role that formalized policy language plays is to make people know what to do and how to do it. In the *Analects* Confucius argued that when names are not correct, the affairs of state will not culminate in policy making and that the common people will not know how to do what is right.

Schoenhals (1992) continues, in contemporary China, by formalizing policy language, the party/state seizes the sole legitimate medium of political expression. He explains that how the party/state rulers prescribe formulations that are circulated to Party propaganda offices and are intended to dominate public thinking about particular issues. He points out that the restricted language perpetuated by Chinese authorities may prevent the development of creative thinking and actions upon which social power depends. These observations may inspire my analysis of how the Chinese government chose a formalised Chinese term for the digital divide.

Having clarified the reasons why Chinese policymakers worked out a Chinese term to

⁴⁴ This observation emerged from my experiences in the course of arranging my interviews and communicating with my friends in academia. Their first response to the key phrase 'the digital divide' in my research was to ask me what the digital divide is and if I mean 'information gap'. The digital divide for them was still not a term or concept in their daily lives when I was conducting my interviews in 2005 and 2006.

refer to the phenomenon, I will now describe the process by which they decided upon a proper Chinese term for the digital divide. Ever since the term was created in the US in 1995, and in particular after the US and others projected the global significance of this concept through, for example the WSIS, the Chinese government and mass media have been inspired to reflect on this phenomenon and started to become concerned about giving a name to the 'digital divide' in Chinese. It was in 1998 that the concept of 'information poor' was first used in a speech by a member of the State Council Development and Research Centre (DARC), and the phenomenon subsequently gained in popularity. A member of DARC said:

[...] This unavoidable trend is both a challenge and opportunity for each region and sector in China. If we do not get a better position in the world in the information era, we will be categorised into the 'information poor' area. In so doing, China will be labeled as an 'information-poor' country. (*Science and Technology Daily*, 10/11/1998)

This warning by this member of DARC expressed Chinese government officers' overwhelming anxiety about China lagging far behind advanced countries. In the late 1990s, the Chinese government started to devote time to developing a proper Chinese term to encompass the emerging phenomenon they perceived inside China, which showed their serious attitude towards this issue. This process also shows how China's domestic developmental context is drawn into their considerations. One of my interviewees described a scenario, vividly presenting how seriously the leader of the Chinese government treated the informatisation in China. This is also clear from the high rank of the officials who attended this meeting:

While the government was recruiting suggestions and proposals for the *Tenth Five Year Plan*, I contributed my ideas to the top governmental leaders. Other officials in high positions were at the planning committee as well, such as the members of *The State Development Planning Commission* (SDPC), Minister of *Ministry of Information Industry* (MII), Minister of *Ministry of Science and Technology* (MOST), and so forth. After the meeting, we did a joint presentation and reported the conclusion of the meeting to President Jiang Zemin. (Personal Interview, CH09, January 2006)

The identities of the participants in this meeting have two implications. First of all, all of them have important positions. Secondly, they are responsible for China's development, in particular industrial and technological development. This implies that the Chinese government took the issue of the digital divide as a developmental and technological issue.

Then, the interviewee continued to recall that the purpose of meeting was as follows:

During the planning stage, we proposed the plan of informatisation via the development of technology. In addition, reducing the digital divide was the focus of the Tenth Five-Year Plan. I recalled that it was half past twelve at night that we were still working on drafting the Plan as well as working out a proper term to name 'the digital divide'. (Personal Interview, CH09. January 2006)

In the process of brainstorming, several Chinese phrases were considered:

[...] the term 'digital divide' in English could be translated into Chinese as *shu zi fen ge* (數字分割), *shu zi cha yi* (數字差異), and *shu zi hong gou* (數字鴻溝). Eventually we chose the term '*shu zi hong gou*' (數字鴻溝) in order to emphasise the huge gap. The word '*gou*' (gap, 溝) illustrated the problem of the gap more correctly than the other candidate terms, highlighting the seriousness and significance of the digital divide (ibid.).

I would like to explain here the differences between these three Chinese terms literally. In Chinese, the English word 'divide' can be interpreted mainly either as several sections (*fen ge*, 分割), big differences (*cha yi*, 差異) or a huge gap (*hong gou*, 鴻溝). The explanation for '*fen ge*' (分割) means the division of a whole, which emphasises the destruction of the entirety. '*cha yi*' (差異) further points out the differences between groups. Moreover, the term '*cha yi*' (差異) in most cases is used for simply describing difference, but not the degrees of difference. It also implies that the difference can be effectively and easily bridged if the proper policy is made. The reason why these two terms were not chosen is because they do not precisely reflect China's situation of the digital divide; they do not pinpoint how huge the difference is, but merely present the relative difference.

In contrast, the explanation of '*hong gou*' (鴻溝) not only represents the differences, but also denotes the degree of difference between groups, presenting the absolute differences. The literal meaning of the Chinese word '*hong*' (溝) is 'a huge bird', which has been used as an adjective for describing that something is too big to be imagined. The Chinese word '*gou*' (溝) means the valley between two mountains or the split part of one mountain. The metaphor of the combination of '*hong gou*' (鴻溝) vividly represents the challenging task of bridging the huge differences between regions and countries, and compels the attention of the state and the public. It is 'just like there is an

incredible gap lying between western and eastern China as well as between China and other countries' (Personal Interview, CH09, January 2006).

Therefore, to correctly reflect the situation of China's informatisation, the participants of the planning committee finally made the decision to adopt the term '*shu zi hong gou*' (數字鴻溝) in their draft of the Tenth Five-Year Plan. Since then, the phenomenon of the digital divide in China has been properly named, and is taken to represent the specific phenomenon facing China both within China and between China and other countries.

After the Chinese government created the term '*shu zi hong gou*' (數字鴻溝), it became a heated topic of discussion in the mass media. In the beginning of 2001, a newspaper article titled *How can we bridge the digital divide—from the penetration rates of computers and the Internet* opened up a series of discussions on this issue amongst specialised media, government, and sections of academia.

However, it is interesting to consider why the Chinese officials spent so much time discussing the translation of 'divide' in Chinese when there were very few debates over the term 'digital'. There may certainly be some explanations for this. The extensive debate over the term 'divide', for instance, may have occurred only because there is no formalized term for it in Chinese. Correspondingly, one reason that no debates addressed the term 'digital' in Chinese may be because the term 'digital' has already been formalized in Chinese - '*shu zi*' (數字), and is thus unproblematic. However, another possible explanation for this is that, when the 'divide' is characterised as 'digital', technology becomes the sole and simple cause of the divide; 'addressing a "divide" that is "digital" might appear to require a digital sort of effort' (Ribbon and Courtright, 2002: 5) to bridge the divide. This explanation points to a technology-centred perspective which, over-estimates the power that technology has and directs policy-makers to simply bridge the technological gap and to guard against the uneven development between regions at this stage.

The latter possibility is supported by a statement made by the deputy minister of the Ministry of Science and Technology (MOST), Ma Songde in a newspaper article, in which the definition of the digital divide and the key concern of this divide mainly focus on the technical dimension of technology distribution and usage.

[...] ICTs brought developed countries huge economic benefits and

social improvement; meanwhile the divide of technology usage between developed and developing countries is increasingly widening. This so-called 'digital divide' is even wider than the economic divide. (*Science and Technology Daily*, 08/01/2002)

6.1.2 Dominant Discourses on the Digital Divide—National Competitiveness and ICT for Development

Having discussed the first level of 'domestication', here I move to the second and third ones—the domestication of the concept of the digital divide to policy discourse within the national context. In this subsection, I show how international organisations' framings of the digital divide and China's national context are interwoven to influence the domestication of the concept of the digital divide in China. In Section 6.1.1, the process of selecting a Chinese phrase was used to show the Chinese government's determination to address the digital divide; this section will go further to investigate the reasons for this determination.

In Chapter 4, I have categorised five discursive frameworks of interpreting the digital divide. In the course of data collection and data analysis, I explored that 'ICT for development' has been appropriated highlighting the framing of the digital divide when the interviewees and participants were explaining why China needs a digital divide policy. And this seems tightly attached to the logic that the digital divide is a barrier to national development, thus digital divide policy is needed to remove this barrier. This triangular relationship between ICT, development and the digital divide mirrors the national context in which the digital divide is embedded. I will now present the storylines from both interviews and documentary sources to illustrate this argument.

China's domestic 'context', described in Chapter 5, explored the context of the domestication of the concept of the digital divide. This is also related to the Chinese government's attitude to and hope for 'development'. First of all, China clearly sees itself as a developing country and is determined to catch up with advanced countries. Secondly, the Chinese government has a strong fear that the lack of information technologies will widen the gap with the industrialised countries. Thirdly, informatisation is regarded as a means to leapfrog. This reveals that for China, internal divide is secondary to international divides.

As mentioned in Chapter 1, 'informatisation' indicates 'process, progress, and duration all the way from the industry society to the information society', as well as 'all the means

to accelerate the process from the information society'. This interpretation of informatisation implies that the Chinese government takes a linear logic on ICTs for (of) development and it contains the uncritical assumption that more investment in ICT infrastructures will result in more 'development'.

The strong emphasis that China puts on development is not surprising at all. Two of Deng Xiaoping's slogans 'science and technology are productive forces' (*ke xue ji shu shi sheng chan li* 科學技術是生產力) and 'science and technology are the first productive forces' (*ke xue ji shu shi di yi sheng chan li* 科學技術是第一生產力) manifest the relation between science/technology and development and the expectation of China's leapfrogging with technological development. Later on, in 1995, the State Council proposed 'The Strategy of National Rejuvenation through Science and Technology' (*ke jiao xing guo*, 科教興國) in the National Technology Conference to affirm the Chinese government's determination to pursue this strategy.

Moreover, nearly two decades on from when domestic economic reform first began, economic development still dominates Chinese leaders' attempts to confront the increasingly uneven development within China. Therefore, the discursive linkage of ICT and development, that is, prioritising the development and promotion of ICT, provides rationalisation of policy (Næsje, 2002) to create policy legitimacy. Through the resonance of these two concepts, the ambition of the government to improve development is legitimately recognised and ICT for development gains in reputation as well. The discourses on 'ICT for development' in China can be documented via the storylines presented below.

Storyline 1: Leapfrogging

The belief in the revolutionary potential of ICTs amongst the Chinese leadership is likely to be influenced by the heritage of China's past (Dai, 2003: 8). In China, the idea of leapfrogging can be traced back and set in historical context, e.g. the Great Leap Forward. The Great Leap Forward was a mass movement under the leadership of Mao ZeDong in 1958, during the period of the Second Five Year Plan. It attempted to break through the limitations of backwardness and to improve the living standards for Chinese people. The fundamental idea behind the Great Leap Forward was that China could leap over the normal stages of economic development in a very short period. This idea rested upon the notion that the masses possessed tremendous productivity, and that they could readily transform labour into capital (Lieberthal, 2004: 103). A major

policy was the promotion of small-scale industry as a concerted programme for rural industrialization (Saich, 2004: 13). This came with a hope that China could catch up with industrialised countries.

In the era of informatisation for the Chinese government, leapfrogging is the idea that countries and societies can jump over one or more generations of technology and that the poor nations can thus move more rapidly to the modern Information Age (Sunden and Wicander, 2002). Leapfrogging also implies that 'progress can be attained in discontinuous leaps rather than incrementally' (Jasanoff, 2002: 269). As mentioned earlier, after being intimidated by western firearms and gunboats during the Opium War at the end of the 19th century, China became eager to learn western technologies, now treating ICTs as the panacea for national development. Therefore, 'leapfrogging' is occupying Chinese leaders and Chinese policy-makers' minds. As one of my interviewees reveals,

The current digital revolution overwhelming the world is a good opportunity for developing countries, including China, to realise leapfrogging development. We lost opportunities in the era of industrialisation; now we are facing new opportunities in the era of the Internet. We cannot, and must not miss this opportunity again. (Personal Interview, CH13. September 2006)

As discussed in Chapter 2, a storyline plays the role of attributing the urgency and responsible behaviour (Hajer, 1995: 65). A storyline also has the functional role of facilitating the reduction of the discursive complexity of a problem and creating possibilities for problem closure (Hajer, 1995: 65). In this extract, the interviewee makes a claim about the urgency that China 'cannot, and must not miss this opportunity again', so the responsible behaviour is to take this opportunity in current digital revolution.

Moreover, the 'leapfrogging' storyline mainly encompasses two related concepts—technological determinism and technological optimism (for definitions of these terms refer to the discussion in Chapter 2). It assumes that ICTs will bring a digital revolution, and with the myth that digital revolution will be a good opportunity for developing countries to 'realise leapfrogging development'. Additionally, leapfrogging storyline ignores the context surrounding development and continuities in the process of technology innovation and development (Jasanoff, 2002).

'Leapfrogging' storyline is usually connected to China's national context emphasizing

economic growth. Therefore, the national economy becomes the recurrent topic pertinent to the discourse of the digital divide. A simple, linear logic directs that if society as a whole can utilise telecommunication technology, development will be achieved more rapidly. The relationship between technology and development was manifested in a public speech by Jiang Zemin, in late 1996, when he attended an OECD conference, that 'integration of technology and economics is the key point for economic development' (*Science and Technology Daily*, page 1, 1996). 'In China itself, a "leapfrogging discourse" has emerged which stresses the economic benefits for development' (Damm and Thomas, 2006: 2).

Storyline 2: National Competitiveness

The storyline of 'national competition' is a repeated motivation for developing countries to foster informatisation, and reduce the digital divide. The two interview extracts shown below may serve as exemplars. These two extracts reveal the importance of informatisation for national competition for China.

Informatisation is the best opportunity for China to win in the current and future national competition race. In the future national competition, whenever one country, one province, one area, even one business is eager to defeat others, informatisation will play a decisive role. (Personal Interview, CH12. September 2006)

China needs to seize the opportunity to speed development in information communication technologies, and utilize them in all fields, such as economics, society, technology, national defense, education, culture, and laws. (Personal Interview, CH01. April 2005)

Storyline 3: Catching-up via Industrialization supported by Informatisation

China takes a stage view in its economic development and regards itself still in the early stage of industrialisation in terms of the nation as a whole. Therefore, China adopts a twin-track strategy of development, which means developing the economy through the parallel processes of industrialisation and informatisation, in the early 1990s, heralded by the launch of 'Informatisation of the National Economy Programme' (INEP). This marked a shift away from economic reform and 'open door' policies developed since Deng Xiaoping came to power in the late 1970s, which were primarily concerned with catching up on the 'missed opportunity' of industrialisation. The emphasis in the future was to be as much on efforts to enable China to become a key player in development of

the global information economy, and 'informatisation has since become a central feature of economic development policy in the post-Deng Xiaoping era' (Dai, 2002:145).

In reality, while competing with other countries in various industries or products, China will lose the chance to win the race without support from information technology. It is because of this concern that Jiang Zemin gave a speech on the National Strategies on the Fifteenth Conference of the Representatives of Communist Party of China (CPC):⁴⁵

[...] utilizing information technologies to upgrade the industrialised level in the course of industrialisation; utilising information technologies to improve traditional industries in the course of informatisation. The informatisation strategy is to fuel industrialisation with informatisation. We, as a late-comer country in technology development and innovation, will benefit from technological leader countries. We will look forward to taking great leaps forward in development. (*Science and Technology Daily*, 1997/09/13)

That is, informatisation and industrialisation are intertwined tightly; one can not work out without the other. Informatisation pushes industrialisation forward; industrialisation provides a market for information. (*Science and Technology Daily*, 1997/09/13)

For some reason, we have missed industrialisation. Now we are chasing the train of the informatisation revolution. We have to adopt advanced technology and equipment, develop national information industry, and combine industrialisation and informatisation. Only grasping this opportunity can we catch up with developed countries. (*Science and Technology Daily*, 1997/09/13)

In China, informatisation is emerging while industrialisation has not been completely realised; that is, informatisation surfaces when industrialisation is still ongoing. Therefore, China does not necessarily follow developed countries' path, which means industrialisation comes first, and then informatisation follows. We in China better develop industrialisation and informatisation at the same time, and develop industrialisation supported by informatisation. (*Science and Technology Daily*, 1998/02/22)

The above extracts implicitly treat informatisation as an uncompleted process of industrialisation. This also provides evidence I mentioned earlier that China takes a stage view to its development that it attempts to clearly demarcate industrialisation from informatisation. When the Chinese officers make the statement that 'catching-up via Industrialisation supported by Informatisation' it indicates China still regards itself as

⁴⁵ National Technology and Information Section, *Science and Technology Daily*, 1997/09/13.

occupying the developmental stage identical to that of the so-called 'industrial revolution' in western countries. The Chinese government sees informatisation as a mechanism which would help the country leapfrog and catch up with advanced countries.

Since China regards informatisation as an opportunity for economic catch up and even leapfrogging, and hopes that informatisation can bring about industrialisation, it is reasonable to argue that the digital divide obstructs its development. In this sub-section, I argue that the concern with the digital divide is nation-centred, not people-centred; and that the digital divide is interpreted as an obstacle to (national) development.

Storyline 4: Necessary to Bridge the 'International' Digital Divide

From the perspective of national development, it was the digital divides between nations that first attracted the Chinese government's attention. When the Chinese government first raised the issue of the digital divide in drafting the Tenth Five Year Plan, they were concerned with the digital divides between China and other advanced countries, instead of the divides within China. The Chinese government was worried that China would fall further behind developed countries and would be prevented from winning the race of national competition. Therefore, in the initial stages of the digital divide, the government was concerned with the nation as a whole, rather than each individual citizen. As one of my interviewees said:

When the issue of the digital divide attracted our attention, we were concerned about the divides between developed and developing countries. That is, the gap between the United States and China. (Personal Interview, CH09, January 2006)

Another extract also supports this observation:

China has been known as a strong country in the world in terms of its big population, but it is not known as a powerful country in terms of the technological literacy its people are equipped with. Thus, if we are expecting to leapfrog from a big country to a powerful country, bridging the domestic digital divide becomes the most crucial challenge facing us. (Hu Angang, *Science and Technology Daily*, 04/07/2002, p.5)

This extract implies the logic of the relationship between bridging the international digital divide and the national digital divide. The international gap between China and

other countries is its people lack technological literacy. In order to overcome this and make China a power country, 'bridging the domestic digital divide becomes the most crucial challenge' facing China (above extract). Following this logic, the ultimate goal of bridging the national digital divide is to make China a powerful country in the world, and to further to bridge the international gap between China and other countries.

As I mentioned earlier in this chapter, the term 'digital divide' was given an official Chinese term by the Chinese government in the end of 2000. Since then, Chinese mass media, particularly the print media, has started to publicise nationwide stories about the digital divide in China. The first appearance of the term 'digital divide' in the mass media was in early 2001, when the Chinese President Jiang Zemin gave a speech at the UN Millennium Summit. As he stated at the Summit, 'the increasingly broadening digital divides between developed and less developed countries represent the huge gap of their technological developments, which would further widen the divides between the south and the north countries'.

It seems that the Chinese political leaders are concerned about the global digital divide more than the domestic one. It is common for them to mention the global digital divides between countries. When Harwit was trying to find a definition of the digital divide for China, he pointed out that 'developing countries' leaders tend to think of the term as an international division of network access' (2004: 1012). Their concerns focus on how China can catch up with the developed countries in the third industrial revolution, since it has already been a loser in the first and the second industrial revolutions. ICTs give China a good chance not only to catch up with but also surpass the developed countries. Obviously, in using this line of argument, they put the international digital divide before the domestic digital divide.

Storyline 5: The Digital Divide as a Barrier to Development

This storyline suggests that the digital divide is a barrier to China's national development. It also implies that the most serious digital divide in China is the regional divide. The deputy minister of MOST wrote a newspaper article in 2002 that was concerned with the domestic digital divide in China. He presented quite a few worrisome statistics to show the uneven development especially between regions inside China, and concluded that 'this huge divide extremely harms China's modernisation of agriculture'.⁴⁶ He continued,

⁴⁶ Science and Technology Daily, 01/08/2002.

'economic poverty only accounts for tragedy at present; however, digital divides may account for the future development in the next decade, as well as being important for sustainable development of the society as whole'.

Another interviewee also mentioned this point. S/he stated:

In China, the digital divide is not the most serious social problem, but the poverty of farmers in the western, rural area is. However, the digital divide may exacerbate the situation of farmers' lives, and will further have negative impacts on the economic development. Therefore even the digital divide is not the most serious social problem for China, the Chinese government is still taking action to bridge the digital divide. (Personal Interview, CH01. April 2005)

Recognising that the digital divide is a barrier to development, the policy-makers further point out that bridging the national digital divide between more and less developed regions is the prerequisite to bridging the digital divide between China and other advanced countries.

We need to bridge both the international and national digital divides. The strategy is to bridge the national digital divide first, and then the international digital divide will be subsequently bridged. If the government takes the other way round, which is bridging the international digital divide prior to bridging the national one, the domestic digital divide will never be bridged. (Personal Interview, CH09. January 2006)

This interviewee points out the linkage between bridging the international digital divide and the national digital divide in China. His words also account for the reason why the Chinese government aims to bridge the digital divide between China and other countries, but it currently takes action in bridging the national digital divide.

The storylines shown in the previous section present a technological determinist and optimist perspective on technology and development. These storylines take for granted ICTs for national development/economic development, without mentioning any negative effects from adopting the ICTs, e.g. Internet crime, pornography and so forth which became frequently-researched topics in the late 1990s when the Internet was entering the commercial field and everyday life. Moreover, these storylines are very similar to the globalising digital divide discourse that the definition of development is confined to national development, i.e. economic development, ignoring other aspects of

development, i.e. social development, individual development, etc. Additionally, there is an unclear logic embedded within the frame 'ICTs for national/economic development'; it is not being clearly articulated why informatisation can help China achieve the above goals. Also the attention to overcoming regional inequalities is at the expense of considering divides within a community – the marginalized groups within a community are either ignored or assumed to benefit by a 'trickle down' process.

Thus far, I have presented the Chinese government's attempts to find a proper term to name the phenomenon of 'the digital divide'. I also revealed how China is concerned about the relationship between ICTs and development. I found that ICT for national development is the main concern of the Chinese government, and that alternative discursive frameworks for the digital divide were not considered. I did not encounter other storylines of the necessity of bridging the digital divide summarised in the previous chapter. As a result, the objective of bridging the digital divide is constructed as advancing China in industrialisation, and realising informatisation to support the unfinished industrialisation.

6.2 China's Determination to Bridging the Digital Divide

6.2.1 MII Plays the Key Role in Bridging the Digital Divide

So far, we have seen the Chinese government's interpretation of the digital divide, which is the top-level view of the digital divide within the government. Following the discussion in Chapter 5 and section 6.1, MII's role in bridging the digital divide has huge implications in this research. First of all, it reflects the international and national context in which the digital divide is understood and the relevant policy is developed, i.e. one in which the issue of the digital divide is taken primarily as a matter of access to physical infrastructure; at this point, the technology-driven ministry (MII) is delegated to be the key policy-maker. Secondly, under the charge of MII, the digital divide policy is inclined to the provision of technology, e.g. the *Cun Cun Tong Dianhua* (村村通電話) policy that I will discuss later in this chapter.

6.2.1.1 MIII Chairing the State Council Informatisation Office (SCIO)

China's bureaucratic structure of authority is characterised by fragmentation which means that the leadership consists of tiers ranging from the core group of top leaders to line ministries which implement policy (Lieberthal & Oksenberg, 1988: 22). This

fragmentation has its disadvantages in that it requires more negotiation between fragmented authorities. However it has advantages in that it brings together the various parties participating in policy making. These positives and negatives also exist in digital divide policy-making.

The State Council Informatisation Office (SCIO) is a cross-ministry liaison and coordination body, chaired by the minister of MII. It is regarded as the supra-organisational coordinator, being responsible for negotiation and resource allocation. As I was informed by an interviewee who is working in the Beijing Informatisation Office, SCIO is an important task-force, in charge of national informatisation planning. SCIO holds special meetings for special issues, such as 'village informatisation'. SCIO is also involved in setting policy goals for national informatisation, without being in charge of detailed policy-making and implementation.

The Office, as a task force, is under the administrative power of the State Council officially, but the director of the Office is assigned to the Minister of MII, rather than another independent organisation. This arrangement shows that MII, as a technological development driven ministry, plays an important role in bridging the digital divide. Additionally, this also shows that the Chinese government takes the digital divide as an issue of physical communication, since this policy is the charge of MII, a ministry responsible for China's informatisation, in particular the infrastructures.

6.2.1.2 *Cun Cun Tong Dianhua*⁴⁷ Project (1999 onwards)

Prior to the introduction of *Cun Cun Tong Dianhua* project, a background understanding of the *Cun Cun Tong* policy is provided first. As mentioned in Chapter 2, policy-makers may make similar policy to solve their domestic problem via social learning. One of the ways of social learning is mimicking other countries' policy. *Cun Cun Tong* is such an example. *Cun Cun Tong* as a set of policies was inspired by the neighbouring country, South Korea, which took the initiative to launch a 'New Village Movement' to develop the rural regions via providing basic infrastructures and telecommunications by means

⁴⁷ The literal translations of this term word by word are as follows: *cun* for village, double *cun* for every village, *tong* for connection and *dianhua* for telephones. The targeted villages mentioned in the policy refer to 'administration villages' (*xing zheng cun*, 行政村), which are the local administrative units in rural China. In contrast to administration villages are 'natural villages' (*zi ran cun*, 自然村). One administrative village is usually composed of 4-5 natural villages. Natural village is the lowest and most basic level of administration units. Each of the villages has one representative, and all of these representatives are members of the natural-village commission. The chairman of the commission automatically becomes a member of the higher-lever unit—administrative villages.

of state intervention from the 1970s onwards. Learning from South Korea, the *Cun Cun Tong* project is a series of policies on improving daily life in rural villages and western China. The goal of this policy package is step by step to fulfill the demands of villagers in transportation infrastructures, televisions, radio, telephones and finally the Internet (Personal Interview, CH13. September 2006).

This project was drafted in early 1998. Now it is integrated into the plan *The Construction of Socialist New Village*, which is prioritised in the Eleventh Five-Year Plan. According to the statistics when embarking on this project, there were 723,000 administrative villages and 5358,000 natural villages. Among them, there were still 117,000 administrative villages and 563,000 natural villages not covered by radio and TV wireless, which meant that 14.8 million Chinese people could not connect to radio and TV.⁴⁸

The first part of the policy implementation began in 1999, with the construction of roads to every village, and provision of electricity for every village. Almost at the same time, SARFT started to implement the policy of getting broadcasting and TV to every village.⁴⁹ The intention of this project is to provide people in remote areas with the ability to watch TV and listen to radio.

By the end of 2005, 117,000 administrative villages and 86,000 natural villages composed of at least 50,000 households were connected to broadcasting radio and TV. That is, 9.7 million farmers in remote areas were now connected. Between 1998 and 2002, the central government spent US \$5.625 million (US \$4 million from the National Development and Reform Commission, and US \$1.625 million SARFT) in getting administrative villages connected to broadcasting and TV. Between 2004 and 2005, the central government spent US \$9.375 million. After the efforts made by the government, the increase in coverage of broadcasting and TV was from 86.02% and 87.68% respectively in 1997 to 94.48% and 95.81% respectively in 2005.

To sum up, since the project started in 1998, the central government has spent US \$15.5 million to get 117 thousand administrative villages and 86 thousand natural villages covered by radio and TV. Moreover, this echoes what I discussed in section 6.1.1 that when the Chinese government defined the term digital divide, it took the physical access for granted, i.e. the first technology of inclusion in *Cun Cun Tong* project is wireless TV,

⁴⁸ Source from <http://politics.people.com.cn/BIG5/1027/4826701.html>, accessed on 09/07/2007.

⁴⁹ Wired broadcasting was installed much earlier and in China it is a mass medium with a distinctive local flavour. Taking loudspeakers for example, in 1980, loudspeakers were penetrating half of all rural households (Lee, 1994).

then telephone, and then the Internet.

From the policy chain of *Cun Cun Tong* comes the policy of providing every village with telephone(s)—*Cun Cun Tong Dianhua* is relevant to my research because it suits the criteria discussed in Chapter 1 concerning the case selection. Therefore my research will single out this policy for analysis. Generally speaking, this project will provide physical communications for 900 million farmers who are not connected to telephones or the Internet. The project is an ongoing process, which aims to get farmers connected to the telephone as the first-stage task, and further to help farmers go online, bridging their digital separation from the rest of Chinese people. A detailed account will be presented in section 6.3.

6.2.1.3 Publication of Internet Reports—China Internet Network Information Centre

Although the China Internet Network Information Centre (CNNIC) does not directly get involved in the policy-making process, or take responsibility for policy implementation, it still plays a key role in providing an outline of the Internet use statistics for the policy-makers mentioned above. CNNIC as an official organisation conducts surveys regarding Internet use of netizens in China twice a year. The results of surveys provided act as significant references for policy making. As soon as the results are finished, CNNIC ‘submits the full report to the Ministry of Information Industry for their data to publish “Chinese Information Statistics Annual Report”, which is the authoritative data cited by academics and international organisations’ (Personal Interview, CH03. April 2005). CNNIC also provides *The State Statistics Bureau* with informatisation data, including Internet-related indicators. The reports CNNIC submitted ‘are not only used for policy-making, but also for complementing what is missing in state informatisation indicators-making’ (Personal Interview, CH03. April 2005).

As mentioned in Chapter 2, boundary-drawing is one of the ways for policy-makers to define the policy problem. CNNIC is playing this role in framing policy via conducting Internet surveys. Although these surveys conducted by CNNIC do not aim to give a definition of what the digital divide is, they do perform the function of drawing boundaries around what should be included in the concerns of the digital divide as well as what should not. Boundary setting via survey materials is one way in which CNNIC is looking at the digital divide in China. The choice of variables addressed makes it obvious which elements are to be taken into account for further policy consideration

when making digital divide policies. The contribution of CNNIC to policy making is through the procedure as stated by my interviewee from CNNIC who is responsible for these surveys:

We submitted the completed reports to the Ministry of Information Industry (MII). MII publishes *Chinese Information Statistics Annual Report* every year in terms of governmental data. We also provide The State Statistics Bureau with some informatisation data, including the Internet-related indicators. Therefore, the report we submitted is not only used for policymaking, but also for complementing what is missing in state informatisation indicators-making. You can also find the indicators of China we made in ITU's or other UN sub-organisations' reports. (Personal Interview, CH03. April 2005)

The variables of the surveys conducted by CNNIC draw our attention to the uneven adoption of the Internet in terms of sociological categories, i.e. gender, age, education, geography, occupation, and so forth. These variables on the one hand draw our attention to the phenomenon they present; on the other hand, they narrow down other possible ways of understanding the digital divide. Deciding variables is itself a way of seeing the world. The boundary resides between those variables that have been constructed and those that have not yet been created. Once a new variable has been built, the boundary is broadened.

Additionally, the variables of these surveys are likely to be the kind of categories found in the digital divide discussion in the west and in other international organisations. This is because these researchers are doing social learning, the concept I discussed in Chapter 2, when they decide the variables. As the interviewee who conducted these surveys told me, he regularly attended international and regional conferences to share his experiences in conducting the Internet surveys with researchers in other countries, and now they have built an international network of conducting Internet surveys.

6.2.2 Other Relevant Policies and Participant Ministries

This section introduces other relevant policies and participant ministries to show the Chinese government's determination to bridge the digital divide. Figure 6.2 presents the complete architecture of digital divide policy in China. As I mentioned in Chapter 1, China at present has no policy directly titled with 'bridging the digital divide', and the policy pertinent to meeting the goal of bridging the digital divide is scattered in a broader policy framework. Thus, the initial effort for the researcher in the course of

data collection was to locate the relevant policy, in which the issue of bridging the digital divide is mentioned and set up as the goal to be achieved. The final version of the policy landscape exhibited in this section has been modified many times based on a literature review between 2003 and 2004, and three research trips between 2005 and 2006. Below I will provide detailed accounts of three relevant policies on bridging the digital divide.

6.2.2.1 *E-School* (year 2000 onwards)

The Ministry of Education (MOE) is responsible for education about information technology in primary and middle schools. In order to realise the strategy proposed by Deng Xiaoping, i.e. 'education should be engaged with modernisation, the world and the future', MOE decided to spend five to ten years to promote computer education in schools. The other significant task for MOE is to implement the policy of *E-School*.

However, before MOE officially embarked on 'E-School' policy, China had already pursued the expansion of digital access on the various fronts. For example, one of the leading forces in spreading data services to China's schools is China Education and Research Network of MOE, or CERNET. The network was founded in 1993, and has as its goal the provision of Internet connections to universities as well as secondary and primary schools. CERNET did not build its own data network, but leases lines from the major telecommunications operating companies, such as China Telecom and China Netcom (Harwit, 2004: 1027).

In order to realise the goal of the Tenth Five-Year Plan (2001-2005), in 2000, the Working Conference on the Education of Information Technology of National Primary and Middle Schools set up the target to advance a thorough distribution and application of the Internet. Later, the *E-School* project was launched to equip ninety percent of all independent primary and middle schools with the ability to access the Internet within five to ten years. The detailed tasks are as follows:

- a. To construct Internet infrastructures in primary and middle schools in middle-range cities;
- b. To build distance-education centers in primary and middle schools in small cities in middle and west regions, equipping them with television sets, DVD players, computers, etc.;
- c. To develop a series of programmes and resources for tutoring, and build a

- shared database for primary and middle schools in teaching;
- d. Engage the teachers of the primary and middle schools in this project, and provide them with training courses to familiarize themselves with the information technologies.

6.2.2.2 *Go West*⁵⁰ (year 2000 onwards)

The projects *Go West* and *The Construction of Socialist New Villages* also reflect China's regionally uneven development as well as China's determination to solve this problem.

The Committee for Western China Development of the State Council has been in charge of the *Go West* project since 2000. The Committee was founded in 2000 to realise the goal of advanced development of Western China. It gained top level support from the central government. The president of the State Council is the director of this committee, and the vice president of the State Council is the vice director. The members of the committee were composed of nineteen central ministers, later expanded to twenty-seven. According to the structure, under the committee is the 'Office for Western China Development', which is taking responsibility for policy implementation.

The main task of the Office is drafting strategies for the development of Western China, including economic development of rural villages, technology infrastructure, etc. The ultimate goal of this Office is to alleviate uneven development between eastern and western China.

Development of the western part of China has been a big concern for Chinese authorities since the Maoist era after the foundation of the People's Republic of China. However, the strategies of economic development that have been adopted by Chinese leaders since this time diverge considerably, though their common goal is to narrow down the regional divide between the coastal/eastern part and the western.

The project *Go West* is mainly implemented by three ministries—the State Council Informatisation Office, the Office of the West Regional Development Leading Group

⁵⁰ The literal translation of this policy title from Chinese into English is 'explore and develop the western China' (西部大開發, *xī bu dà kāi fā*). Interestingly, its official website in English version uses 'Go West' as the English title of this policy. 'Go West' is a paronomasia, which on one hand means going to and exploring the western China, and the other, learning the developmental experience from the western countries and catching-up with the western countries eventually.

of the State Council, and MII. This project is part of efforts to help China bridge the digital divide, from the perspectives of development, research, promotion and application. With regard to the detailed objectives of this project, it encompasses the following:⁵¹

- a. Based on the environment of the west region, making best use of the information technology and products to underpin the informatisation in this region;
- b. To promote the implementation of information technology step by step through building up model centres;
- c. To drive industrialisation through informatisation; help the west region to improve the industry structure, and develop information industry; upgrade increasingly the informatisation level in the west region;
- d. Within three to five years, the model centres can fulfill the expected requirements;
- e. Within ten years, the digital divide can be largely bridged.

To fulfill the objectives, the project focused on the building of the infrastructures, Internet education, computerised agriculture, and the informatisation of manufacturing. The basic principle of enforcing this project is 'spend less, work more, and do real work'. The fact that the government spent US \$25 million in this project demonstrates its determination to develop the west region and to bridge the digital divide between the eastern and western regions within the nation.

Later on, in April 2003, the Ministry of Science and Technology launched a US \$24 million project called 'Narrow the Digital Divide—the Western Action'. Under this project, the western region has made great progress in Internet-related infrastructure. Taking the Ningxia Hui Autonomous Region for example, multimedia online classrooms and rural information websites have been set up in more than 100 primary and middle schools. The other example is the Tibet Autonomous Region in July 2004, where a full-scale information platform was established to provide online technology for Tibetans (*China Daily*, 25/03/ 2005).

6.2.2.3 *The Construction of Socialist New Villages (year 2006 onwards)*

Since people in rural and poor regions in China are mainly earning their livings by

⁵¹ http://66.102.9.104/search?q=cache:0OUSDvLi_Bof:gxc.gzst.gov.cn/zx/030227.doc+%E7%BC%A9%E5%B0%8F%E6%95%B0%E5%AD%97%E9%B8%BF%E6%B2%9F%EF%BC%8D%E8%A5%BF%E9%83%A8%E8%A1%8C%E5%8A%A8&hl=en&ct=clnk&cd=7&gl=uk, accessed on 12/12/2007.

agriculture, the Ministry of Agriculture (MOA for short) takes part of the responsibility for reducing the digital divide. The policy 'Construction of a socialist new village' is the responsibility of MOA.

This programme is part of the eleventh five-year plan from 2006 to 2010, including currently working schemes, such as *Go West* and *Cun Cun Tong*, furthering the goals of these incumbent plans. The Chinese government has decided to spend at least US\$ 37.5 million on infrastructure deployment in rural areas during the period of the Eleventh Five-Year Plan.

Constructing socialist new villages is the top priority of the Eleventh Five-Year Plan, which shows the determination of the Chinese to bridge the gaps in all areas of life between rural and urban eras, and the west and east regions. Expanding and continuing the *Project of Extending Radio and TV Coverage to Every Village*, to get all villages connected to broadcasting and television and developing distance education are listed as the top projects that the Chinese government is eager to finish.

As mentioned earlier, before 2003, there was no definite digital divide policy in China. It is not until the drafting period of the Tenth Five-Year Plan that the digital divide gained attention from the media as well as from policy-makers. Furthermore, digital divide policy has been inspired by foreign countries, regional and international organisations. With more and more frequent foreign visits of governmental officials as well as speedy flow of information via attending international conferences, the Chinese government has been learning lessons from other countries.

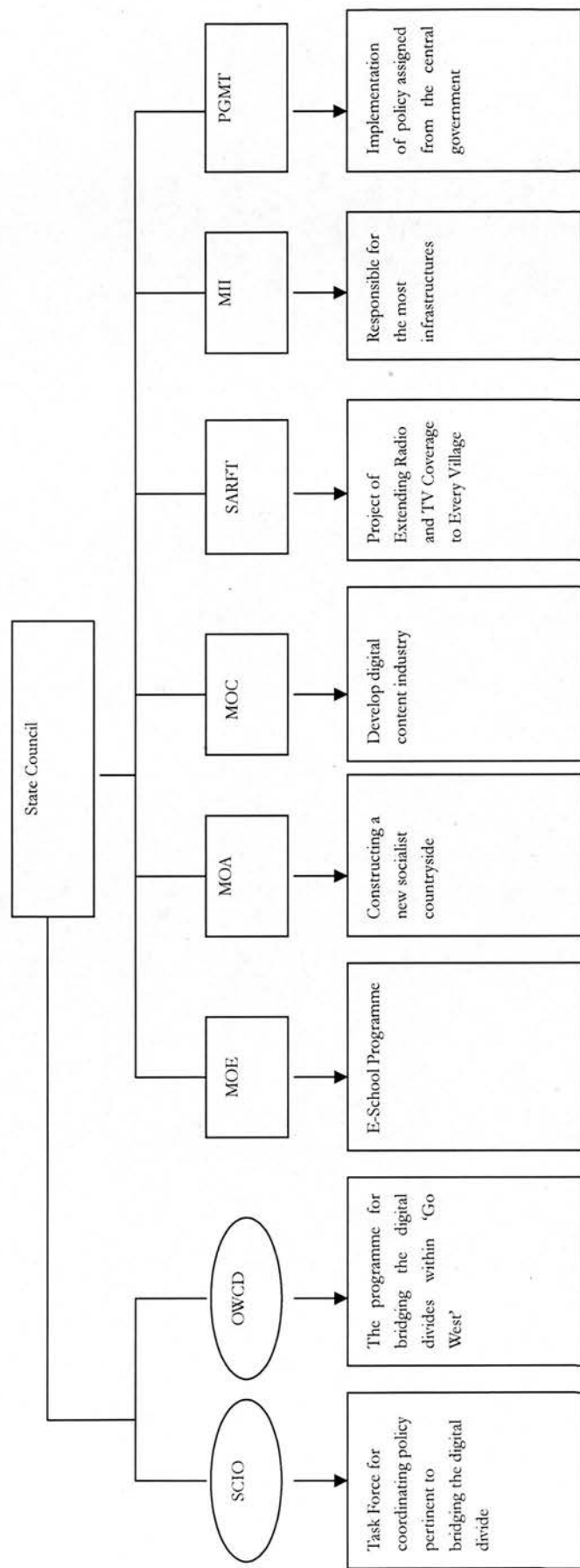


Figure 6.2 The Architecture and Participant Ministries of Digital Divide Policy in China⁵²

⁵² The full titles of each ministry and office are as follows: SCIO=State Council Information Office; OWCD=The Office for West China Development of the State Council of China; MOE= Ministry of Education; MOA= Ministry of Agriculture; MOC= Ministry of Culture; SARFT= The State Administration of Radio, Film and Television; MOII= Ministry of Information Industry; PGM=provincial government

6.3 Case Study: *Cun Cun Tong DianHua* (村村通電話) Policy Realised through *Fen Pian Bao Gan* (分片包幹)

Previously I argued how the Chinese government's selection of a Chinese term in its domestication of the concept 'the digital divide' and the policy and ministries involved in digital divide policy making both reflect the serious attitude of the Chinese government to the digital divide. In this section, I provide a case study to provide more evidence to show how the dominant storylines of the digital divide (leapfrogging, national competition, etc.) have had an impact on the policy outcomes. This case also shows China's determination to bridge the digital divide in order to help the nation's economy. I also discuss the ongoing debates between ministries in this section. The reasons for selecting this case for illustration were already provided in Chapter 1.

In the following analysis, I first present the definition of this policy and the measurement of policy implementation. Then, I examine the debate which occurred prior to this policy, which shows two perspectives on how rural development should be carried out. I will next present the construction of digital divide discourse in this policy, which is embedded within a broader national development discourse, and demonstrate how this discourse influenced both policy making and implementation. Subsequently, I reveal how this policy has been made and implemented in a market-driven telecommunication market via a centralised political approach. Regarding the implications pertinent to the digital divide and implementation of this policy, I will provide comprehensive and comparative accounts in Chapter 9 when comparing China with the case of Taiwan.

6.3.1 Background of the Case—*Cun Cun Tong Dianhua*

Cun Cun Tong Dianhua is included in a packaged policy aiming to develop the rural areas in China, which is expected to realise the balanced development within China via technology provision, building a basic telecommunications network in rural China (see Figure 6.3). With the definition of the title in *Cun Cun Tong Dianhua* (村村通電話) policy, *Cun* means a village, *Tong* (connection/access to) is the current policy goal, *Dianhua* means landline. The village is operationally defined as connected as long as it is equipped with a single telephone set (Personal Interview, CH13. September 2006). This implies that the present focus of this policy is on infrastructure, and physical access.

Getting all villages connected to the basic telecommunication infrastructure is one

dimension of this packaged policy and is within the popular scheme of universal service implemented in advanced countries already. However, it is a rather different view from that of the advanced countries. For example, in the US, universal service seeks to get every household connected to the basic telecommunication infrastructure; in China, the target unit for universal service is village. Under the principle of 'development' within the context of China, the Chinese government is eager to draw 900 million farmers (nearly two-thirds of China's population at the end of 2005) into the informatisation era. Taking into account the existing living standards in remote villages, especially in western China, the Chinese government adopted a step-by-step policy to implement universal service policy, providing the villages with telephones in the first instance, and then the Internet. MII is in charge of this policy, which was initiated in July 2003 and is still underway.

One official of MII made the complaint that 'this is the most influential, wide-ranging, and difficult project that MII has even been in charge of since its foundation for the past seven years' (Personal Interview, CH13, September, 2006). Mentioning this as the most difficult project during the past seven years ironically implies that MII has suffered the greatest hardship during the setting up of this policy mechanism. The difficulty of this project mainly stems from financial shortages. First of all, there is no effective channel for securing funding. Secondly, a huge amount of money must be invested in telecommunication facilities in small villages during the initial stage, whereas it takes a very long time to generate profit for investors. This is the reason why private companies are not very interested in joining this project. Thirdly, the villages left unconnected are located in the most remote areas, which means that it costs more money and effort to get them online.

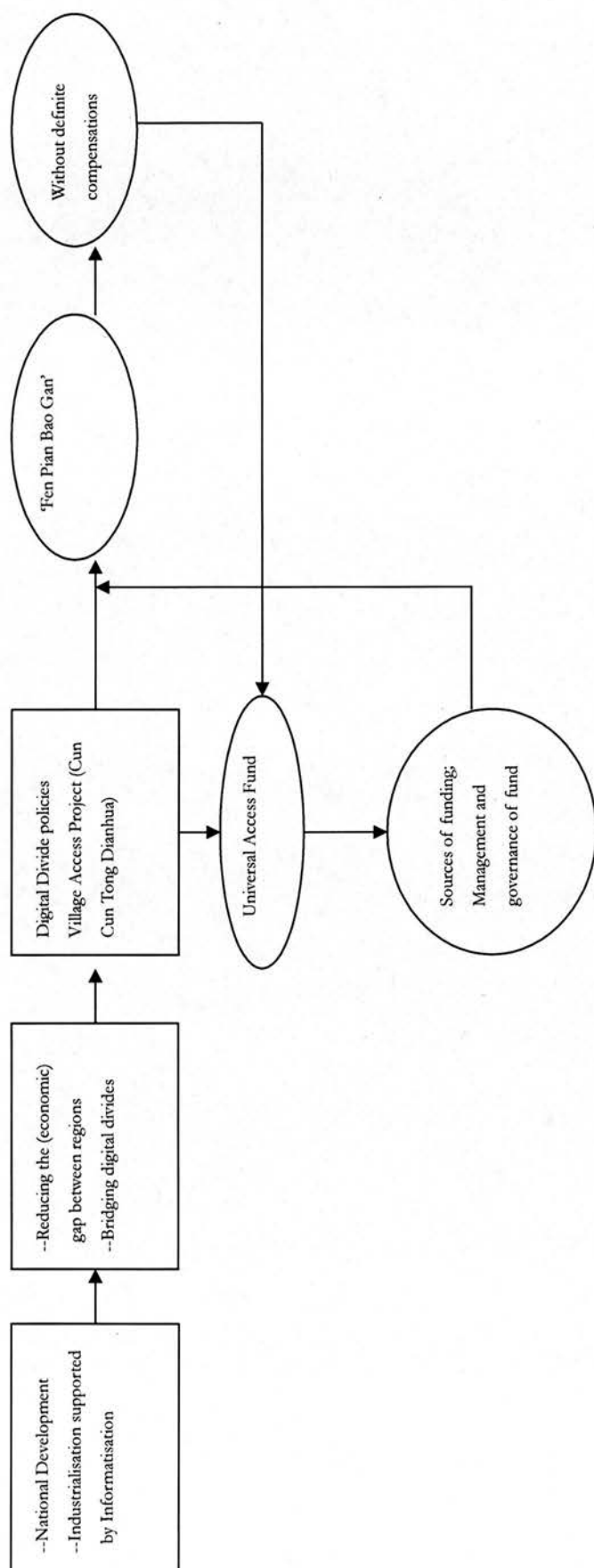


Figure 6.3 Path of Thinking on the Cun Cun Tong Dianhua Policy

6.3.2 Debates over the Mechanism to Bridge the Digital Divide

6.3.2.1 Universal Service Endeavouring in China

In order to implement the *Cun Cun Tong Dianhua* policy, the idea of universal service was proposed by MII and gained publicity in mass media and academic research. According to the experiences from advanced countries where the goal of universal service⁵³ (telephony) has been nearly realised, universal service policy had been starting to be implemented before telecommunications markets were deregulated, liberalised and opened to competition. However, no sooner had China started to open its telecommunications market than it began this policy. Therefore, the main challenge of this project is that, as Preston and Flynn (2000) argue, 'this is unlikely to occur under a largely market-led system for obvious reasons—there's no profit in offering services for free' (Preston and Flynn, 2000:97) from the standpoints of telecommunications operators. In China, universal service is particularly regarded as a non-profit business because of the huge geographical distances mentioned in Chapter 5. Moreover, the suggestion, that the government does not need to take actions to steer telecommunications in rural areas, also challenges the enforcement of universal service. As a result, MII was proposing a financial mechanism—Universal Service Fund (USF)—to achieve the goal of universal service, connecting all villages to telephony.

6.3.2.2 Debates over the Mechanism of Universal Service (Universal Service Fund, USF)

The Idea of USF

In order to implement *Cun Cun Tong Dianhua*, MII came up with the idea of a 'Universal Service Fund' (USF) in 1998. 'In May 2000, the State Development and Planning Commission suggested the establishment of a USF in accordance with international standards' (Harwit, 2004:1027). In November 17, 2001, the State Council for the first time announced in its formal public document that China would set up a USF to bridge the digital divide in western/rural areas. In June 2002, MII finished a research trip to other countries, and submitted an official report entitled 'A Research Report on Universal Service Fund and Its Application in China' to the Ministry of Finance (MOF).

⁵³ Universal service policy applied with nationalised administration; however these often had high charges and low connection rate (about 60% in the UK). Privatisation increased penetration and also stimulated more formal US regulatory requirements.

In this report, MII suggested that all private telecommunication companies are eligible for affording universal service, and had a responsibility to contribute to the fund.

'In the second half of 2002, the two ministries planned to discuss the details of how to raise and manage the fund. The recommended size of the proposed fund was US\$ 1.2 billion. Finally, in early 2003, MII announced that all of China's major fixed-line and wireless telephone companies would have to pay an annual fee of US\$ 0.03 for every phone number they owned (even ones not currently in use), in order to spread phones to rural regions. The total projected revenue would be about US\$ 48 million per year, considerably short of the necessary total fund size projected in the previous year' (Harwit, 2004: 1027). In 2004, MII proposed that for a better future, the foundation of USF is the best solution to universal service at the National Information Industry Working Conference.

The Difficulty in Setting-Up USF

However, USF has not solved MII's problems in implementing *Cun Cun Tong Dianhua*. The USF still had not been set up when I began writing this thesis. MII is still having trouble in setting up USF, and this has generated a debate between MII and MOF. The basis for this debate stems from the division of labour between bureaucratic ministries, not from the USF *per se*. As an actor in charge of bridging the regional divide, MII does not have the financial resource to implement the policy, but MOF does (Personal Interview, CH13. September 2006).

The creation of a universal service fund has undergone several difficulties. An analyst working for one telecom operator summarizes four reasons to explain the barriers to the launch of a universal service fund:⁵⁴

1. Universal service is under the regulation of the telecommunication service, and there exist some difficulties in cost-benefit calculation;
2. Six telecommunication operators remain skeptical about the launch of a universal service fund. They are not really willing to donate to the fund;
3. The foundation of a universal service fund will have tremendous impacts on the interests of ministries and interest groups. This creates much difficulty in coordinating, and creating a universal service fund;

⁵⁴ *China Management News*, 14/05/2005, <http://telecom.chinabyte.com/78/2005078.shtml>, accessed on 26/12/07.

4. The Chinese government lacks experience in managing a universal service fund.

The MOF thought that there is no sufficient reason to set up such a fund, and furthermore, that there is no proper mechanism for running this fund at this moment in China. Without the approval of MOF, the proposal was left aside, even though proponents have never given up promoting this idea for China.

Although the fund is still at the preparation stage, three ministries—MII, MOF, and NDRC (National Development and Research Commission, NDRC) jointly issued a document at the end of 2004 to charge telecommunication resources for the foundation of USF since April 1st, 2005 onwards.

6.3.3 A Compromised Policy Outcome—*Fen Pian Bao Gan* (alternative method of policy implementation)

Since the USF has not yet been launched, MII adopted a complementary strategy to realise the policy goal of raising the penetration rate of telephones in rural areas. This complementary policy is unique under Chinese political circumstances. MII decided to use administrative/political means to designate six existing telecommunication companies to share the responsibility for implementation of ‘telephones to every village’. They gave this complementary strategy a brief term ‘*fen pian bao gan*’, which is similar to China’s famous farm reform in the 1980s, carried out to modify inefficient systems in agriculture during the Cultural Revolution (Email Interview, CH20, October 2006).

In order to run *fen pian bao gan* fairly, MII created a complicated mathematical model to assign six telecommunication operators to take responsibility for getting remote villages online, which is based on the revenue and profit each operator gains. According to the model designed by MII, the six operators ideally take the same responsibility for getting all villages online. After the rules of game were set up, MII would evaluate the implementation of the six operators, tracing the progress quarterly. After each evaluation, MII could regularly report the progress and implementation of these six operators to the State Council, and Provincial Governments, as well as announcing the results to the telecommunication industry.

Although the policy mechanism *Fen Pian Bao Gan* has attracted some criticisms from private operators (see section 6.3.4.1), *Cun Cun Tong Dianhua* has made great progress in terms of telephone penetration. The project underwent two pilot stages called ‘act after

trials' (Yu *et al.*, 2004: 719) (*shi dian*, 試點) before it was formally initiated. The first stage took place in the beginning of 2004 in five provinces and the second stage in mid-2004. During the pilot period, each operator was assigned either one province or autonomous region for its own experimental spot. After successful trials announced by MII, the policy was formally initiated in 2004 in all villages in need of telephone access. Figure 6.4 shows the assigned pilot province of each operator. Under the initiative of MII, this policy has recruited US\$ 250 million from six operators. According to MII's reviews every month, these six operators have made great progress in policy implementation (see Figure 6.5).

Operator	Pilot province	The target amount of villages
China Telecom	Shaanxi Province	3,457
China Mobile	Sichuan Province	6,112
China Satcom	Sichuan Province	132
China Netcom	Inner Mongolia Autonomous Region	1,557
China Unicom	Guangxi Autonomous Region	1,680
China Tietong	Henan Province	193
Total		13,131

Figure 6.4 Pilot Province and Target Amount of Villages of each Operator (Source: http://www.mii.gov.cn/art/2005/12/29/art_992_4083.html)

Phase(s):Year (month)	Connected/expected villages	Progress (connected /expected villages)%	Connected/whole villages (%)
Phase I: 2004 (1~12)	9,357/37,741	24.8	90.9
Phase II: 2005 (1~3)	16,135/37,741	42.6	92
Phase III: 2005 (5)			
Phase IV: 2005 (6~7)	19,609/37,741	52.0	---
Phase V: 2005 (8)	25,473/37,741	67.5	93
Phase VI: 2005 (9)	32,165/37,741	85.2	94
Phase VII: 2005 (10~11)	52,304/37,741	138.6 (achieved the goal before due)	97
Phase VIII: 2005 (12)	--	--	--
Phase VIII: 2006 (1~3)	--/10,600	97.6	97.6
Phase X: 2006 (4~6)			
Phase XI: 2006 (7~8)	--/10,600	98%	98

Figure 6.5 Progress of 'Cun Cun Tong Dianhua' (Source: MII Website; Compiled by the Author)

6.3.4 A Harmonised or Discordant Complementary Strategy?

As mentioned in Chapter 5, the six telecommunications operators are listed companies, and as I described earlier in this chapter, investment in rural area may not be a profitable business. As one governmental official admitted, ‘undoubtedly, this has been questioned by telecommunication companies.’ Then, the question follows: why do operators consent to implement *fan pian bao gan*? And how has the Chinese government managed/achieved it since this policy conflicts with the rules of running in a supposedly open, free market?

6.3.4.1 The Problems with *Fan Pian Bao Gan*

Prior to providing possible answers to this question, I will detail the problems with *fan pian bao gan*. The first problem originates from the uneven workload between operators, even though MII has carefully set up a mathematical formula to distribute the workload. Before the opening-up of China’s telecommunication market, China Telecom had been playing the monopolist role in providing universal service. One of the most important tasks is to get every village connected to telephones, which is regulated under China’s ‘Telecommunication Regulations’. However, even after the market gradually turned out to be competitive, and China Telecom no longer monopolised China’s telecommunication market, China Telecom was still burdened with the implementation of *Cun Cun Tong Dianhua* policy. For China Telecom, it seemed very unfair, because performance is of great significance for a listed company. Therefore, China Telecom was not pleased that it alone was given the obligation to implement this policy, although now this responsibility is shared with other telecommunications operators.

The other problem comes from the high cost of spreading the cable over the rural areas, and the low rate of return. For example, China Telecom spent US\$ 1 billion annually in providing universal service in rural areas. Additionally, with the cancellation of set-up fees as well as the competition of long-distance telephone costs with other operators, China Telecom is now slowing down its pace in investing in telecom infrastructure.

6.3.4.2 Why Do Operators Consent to Implementing *Fan Pian Bao Gan*?

Thus far, it has shown that there is disagreement about *Fan Pian Bao Gan* strategy in implementing *Cun Cun Tong Dianhua*. The question comes out to be: then, why do operators consent to implementing *fan pian bao gan*? The answer could be quite simple, as

stated by one of my interviewees from MII:

To be honest, investing in the telecommunication facilities in rural areas has no profit at all. For example, I have been visiting to a small, remote village in Zhejiang province. The mere cost of making a telephone work is 30 thousand RMB yuan (equal to USD \$3,750). MII does not provide any incentives to these six telecommunication companies. These companies are affiliated with MII, and the CEOs are assigned by MII. Therefore, those companies regard the implementation of this policy as their political responsibility. Although these companies are listed companies, they are owned by the state. (Personal Interview, CH13. September 2006)

But, the answer may be not that simple, and it is related to the unique characteristics of China's opening up her telecommunication market in 1998, as well as the transferring of the ownership. 'In terms of privatisation, the government has maintained a majority ownership in the largest operators. Competition remains limited in basic services and the independence of the regulator is far from being achieved' (Laperrouza, 2006:28).

As mentioned in Chapter 5, the year 1998 was a crucial turning point in China's reform of the telecommunications industry. Soon after the establishment of MII, the telecommunications industry underwent a considerable re-organisation. In 1999, China's telecommunication service experienced the first re-organisation. The monopolist China Telecom has divided into four operators—New China Telecom, China Mobile, China Satellite and China Unicom. China's telecommunication monopoly ended with this split. In 2001, the second reorganisation took place, and the new China Telecom further split into two: new China Telecom and China Netcom. After two phases of reorganisation of China's telecommunication service, there exist six operators at present.

Before the reorganisation of the telecommunication market, the Chinese government could easily assign the monopolist China Telecom to take responsibility for universal service. In principle, after the two stages of reorganisations were carried out, the Chinese government could not exert political power over assigning operators to take on the burden of universal service. However in reality, the state still remains the biggest shareholder of most of the operators. Even China Netcom, the least state-owned company, still has forty percent shares owned by the state. Of the six operators, two are completely owned by the state (see Figure 6.6). It is under such a political and financial environment that these six operators are taking the responsibility for implementing the

policy, even though they are reluctant to. Therefore, the state holds the majority of shares and is the biggest shareholder in these six operators who provide basic infrastructure to remote villages to solve the problem of 'the last mile' (*zui hou yi gong li*, 最後一公里).⁵⁵

Additionally, it is not just that the state has high shares in the private operators; it is also administration power of the state which could refuse licenses, e.g. operators wanting 3 G licenses, etc.

Operator	Date	Amount (billion)	Comment
China Mobile	1997/10	USD 4.20	Listing on HKSE and NYSE of Guangdong and Zhejiang network. 24.3% publicly held.
China Unicom	2000/06	USD 4.92	Listing on HKSE and NYSE. 22.53% publicly held.
China Unicom	2002/09	RMB 11.5	Listing on SSE. 39.5% stake in China Unicom (HK).
China Telecom	2002/11	USD 1.43	Listing on HKSE and NYSE of 4 provincial networks (Shanghai, Guangdong, Jiangsu and Zhejiang). 20% publicly held.
China Netcom	2004/11	USD 1.13	Listing on HKSE and NYSE of Shanghai, Guangdong, Beijing, Tainjin, Hebei, Shangdong, Henan and Liaoning. 27.7% publicly held.
China Railcom	2005	RMB 2.00	Listing on SSE (A shares) postponed.

Figure 6.6 IPOs by China's Telecommunication Operators, 1997-2004 (Source: Laperrouz, 2006:101)

Note: SSE=Shanghai Stock Exchange; HKSE=Hong Kong Stock Exchange; NYSE=New York Stock Exchange.

Due to the complaints from operators, although '*fan pian bao gan*' policy seems to be working well, and the progress has surpassed anticipation, this policy is a pragmatic solution but also a second choice, rather than the best one for MII if the proposal of a universal service fund could be successfully implemented. As one Chinese official said in a public forum, 'in order to get every village connected to telephones last year, we gathered the six telecom operators to have an administrative negotiation. Although the six operators remain skeptical of this replacement, we have no other choices but this one.'⁵⁶

⁵⁵ The 'last mile' indicates the final leg of delivering connectivity from a communications provider to a customer. It is usually referred to by the telecommunications industries, which is typically seen as an expensive challenge because "fanning out" wires and cables is a considerable physical undertaking.

⁵⁶ Chen, Jinqio. *The Second Private Business Forum*.

6.4 Conclusion

This chapter shows a rather complex pattern of bridging the digital divide in China. It is shown that the digital divide is first about China's national standing in global competition. Then it becomes welded to the issue of the national regional digital divide. This shift stems from the belief that bringing the national digital divide will then bridge the divide between China and other countries. Currently in China, the regional divide is the big concern for Chinese policy-makers; therefore a pragmatically feasible goal of one landline in every village is carried out to bridge the regional digital divide. In policy implementation, a pragmatic administration pressure is used to fulfill the same policy goal because the USF is delayed.

Overall, despite the competing forces that were involved in the policy-making process, this chapter shows that the Chinese government attempted to impose a top-down definition of the digital divide. This is demonstrated by the process of selecting a Chinese phrase to name the digital divide which was carried out by high-ranked officials who reported the result to the President Jiang Zemin. This centralised approach is also reflected in the frames of the digital divide, e.g. nation-centred, not people-centred, as well as the implementation of *Cun Cun Tong Dianhua* via the *fan pian bao gan* mechanism. In Chapter 9, I will contrast this centralised model with the less centralised model adopted by Taiwan at the national level.

Regarding the frames used to state the importance of bridging the digital divide, I have in this chapter presented and elicited the main discursive frameworks of ICTs for development and national competition. I found that the relationship between the four elements—development, ICT, digital divide, and digital divide policy—is explained in the economic concern of ICT for development. Development is undoubtedly an important issue for developing countries. In the informatisation era, ICTs have come to be regarded as an efficient tool for (national) development and competition, with the hope of activating 'industrialisation supported by informatisation' in China. China believes that through this developmental process, it gains a great opportunity to surpass developed countries.

However, as I discussed in chapter 4, 'development' is by no means a single-dimension concept. Development discourse has its historical and theoretical roots in both western and third world countries. When 'development' emerged in the development studies field, it referred to material improvement, especially economic growth. In the 1990s, the

concept of development extended to focus on 'human development', citizenship and other related terms. The discussion of the digital divide also extended to combine a group of terms such as human rights, citizenship, and human development in the global level. However, the discourses pertinent to 'ICT for development' and the digital divide in China present a very simplified and one-dimensional image, in which national development predominates.

The one-dimensional frame which is employed in tackling the digital divide represents the challenge facing China, a developing country, and the national context of ICTs development. In China, the uneven dual economies seem to be an obstacle to national development. People in western China still live in poverty. They cannot even afford a telephone. Therefore, the issue facing the Chinese government first of all is to get villages connected to telephones, and the Internet would be next. It is within this national context that China implemented the *Cun Cun Tong Dianhua* policy.

The investigation of *Cun Cun Tong Dianhua* shows the following findings. First of all, MII, as the ministry responsible for this project, seems merely to care about the penetration rate of telephone connections. The second point, which relates to the first one, is that MII cares about infrastructures rather than content, although it could be argued that MII is merely responsible for the infrastructure given the division of labour among the government, and at this stage the infrastructure is the first step to bridge the digital divide. However, it could also be argued that the fact that MII is delegated to implement this policy to a large extent reveals the Chinese government's expectation of bridging the digital divide by providing technological/physical access as a developing country. Physical access is a prerequisite to bridge the digital divide, but it should not be the only barrier.

However, China's attempt to bridge the digital divide by means of the *Cun Cun Tong Dianhua* faces the difficulty of lacking the related supporting mechanisms, for example, the USF. In order to realise the policy objective of universal service in a narrow sense and '*industrialisation supported by informatisation*' in a wide sense, MII adopts a centralised strategy *fen pian bao gan* to set up the tasks for six telecommunications operators, which distorts the telecommunication market in the environment of deregulation, competition, and liberalisation. This also provides further evidence that the Chinese government's determination to bridge the regional digital divide. In the next two Chapters, I will examine the case of Taiwan; its national context is presented in Chapter 7 and the empirical study in Chapter 8.

Chapter 7

Taiwan's National Context for Bridging the Digital Divide

This chapter deals with the Taiwanese national contexts in which the digital divide and corresponding policy are emerging. These domestic contexts discussed in the following four sub-sections also provide the reasons behind the Taiwanese government's domestic digital divide policy-making as well as its promotion of and participation in the Asia-Pacific Economic Cooperation (APEC) Digital Opportunity Centre (DOC) project. Section 7.1 describes Taiwan's geo-economic structure in terms of regionally unbalanced development, which serves as the initial reason for making digital divide policy. Section 7.2 outlines the trajectory of economic development in terms of the transition of economic structures, which represents another reason. Section 7.3 describes the power transition from the Nationalist Party (Kuomintang, KMT) to Democratic Progressive Party (DPP), which ascribes DPP the responsibility to improve Taiwan's development status. Section 7.4 provides the history of how Taiwan's international standing changes and its current situation, which provides the background of Taiwan's promotion and participation in APEC DOC (ADOC). Section 7.5 concludes this chapter.

7.1 Geo-Economic Structure—Regionally Unbalanced Development

Taiwan is formally known as the Republic of China (ROC). Established in 1912, the ROC was Asia's first constitutional republic. The ROC government, led by the Kuomintang (KMT), relocated to Taiwan in 1949 when the Chinese Communist Party (CCP) established the People's Republic of China (PRC) on the mainland (GIO⁵⁷, 2006).

With 22.8 million people living in an area of about 36,000 sq. km, Taiwan has a population density of 631 persons per sq. km, making it one of the most densely populated countries in the world. The population is concentrated on the western coast around the metropolitan areas of Taipei in the north, Taichung in the centre, and Kaohsiung in the south (GIO, 2006). The concentration of population in big cities brings about the uneven regional development (MOEA, 2006),⁵⁸ which is also reflected in the penetration of ICTs. According to the 2005 Digital Divide Report, 'there were

⁵⁷ The full title of GIO is 'Government Information Office', see page VII, List of Abbreviations..

⁵⁸ <http://investintaiwan.nat.gov.tw/zh-tw/news/200611/2006110301.html>, accessed on 17/07/07.

significant differences in the opportunities for access to computers amongst individuals in different counties and cities' (2005: 5). The Report shows the evidence that 'more than 70% of people in Taichung City, Taipei City and Hsinchu City had access to the Internet', 'while less than 55% and 50% of people in Chiayi County, Penghu County and Yunlin County had access to computer and the Internet respectively' (2005: 5). Figure 7.1 shows the regionally unbalanced ICTs penetration in Taiwan.

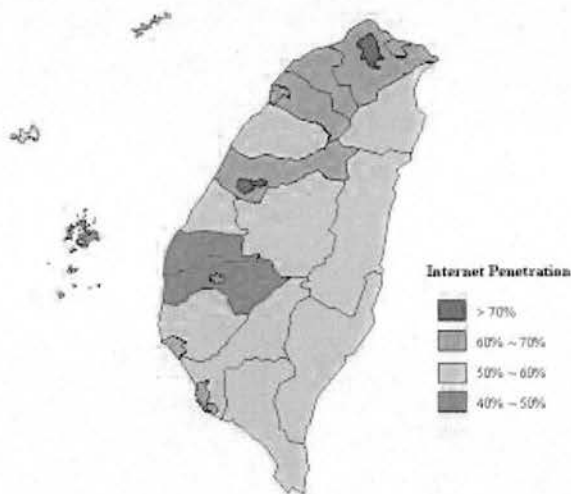


Figure 7.1 Taiwan's Regionally Unbalanced ICT Penetration (Source: Digital Divide Report 2005, RDEC, Taiwan)

7.2 Economic Transformation and the Government's Emphasis on 'Informatisation'

This subsection presents the economic history of Taiwan, focusing in particular on two significant economic transitions: the 1960s' industrialisation and the 1990s' 'informatisation'. The second economic transition is still ongoing and the difficulties of economic transition are forcing the new ruling party DPP to look for ways to overcome them. It is within this political-economic context that the Taiwanese government was determined to make the digital divide policy.

7.2.1 1895-1945: the Colonial Period

Taiwan had been colonised by many countries, including Spain, Holland, and Japan, before 1945 when Taiwan was governed by the ruling party KMT. During the period 1895-1945, Taiwan was a colony under Japanese authority, which made a crucial contribution to Taiwan's early development and to agriculture in particular. As a result

of 'the Japanese occupation from 1895 to 1945, Taiwan had a relatively modern infrastructure in the form of roads, railways, harbors, and the like to build on' (Lau, 1986: 3).

7.2.2 1951-1965: US Aid

While the Japanese colonial era provided the foundation of Taiwan's development in terms of the transportation infrastructure and agricultural economic structure, the US helped Taiwan develop a rapidly industrialising economy in 1965 (Jacoby, 1966: 238).

When the Nationalist government moved to Taipei in 1949, the economy of Taiwan was still recovering from heavy Allied bombing during World War II. Only some industrial facilities remained intact. The US aid helped stabilise the situation and laid the foundation for a future economic takeoff. From 1951 to 1965, large amounts of economic and military aid came from the United States. Much of the aid was used to improve Taiwan's infrastructure and the agricultural sector, which accounted for the 31.1% of all investment (Howe, 2001: 50). With domestic resources, the private sector contribution was only marginally larger than the public one. This structure of investment by resource was partly a reflection of the Japanese period and its aftermath, but also congruent with KMT philosophy which, following Sun Yet-sen, the founding father of National China, had the preference of many socialist-oriented KMT ideologues (Cheng, 2001: 28; Howe, 2001: 50). Therefore, during this period, the Taiwan economy can be thought of as a transforming, semi-socialist economy supported by American guidance and resources (Howe, 2001: 50).

The American influence in this period was exercised partly through institutions and US advisors stationed in Taiwan, and partly through the role of American-educated administrators and economists (Lau, 1986; Howe, 2001:49). The key institution founded for the US aid included the Council for United States Aid (1948), the Economic Stabilization Board (1951), later the International Council for Economic Co-operation and Development, and the Joint Commission for Rural Reconstruction, later transformed into a *de facto* ministry—the Council for Agriculture (Howe, 2001: 49). Therefore, 'even after direct U.S. aid ceased in 1965, the United States continued to contribute to the Taiwanese economy through trade, direct investment, technology transfer, and the education and training of advanced students' (Lau, 1986: 3).

So far, it has been shown that the economic relationship between Taiwan and the US

has been strong since the 1950s. In recent years, in terms of trading volume, in the first half of 2004, Taiwan was the United States' eighth largest trading partner (behind Canada, Mexico, China, Japan, Germany, Britain, and South Korea); its ninth largest export market, and its eighth largest source of imports (GIO, 2004).⁵⁹

7.2.3 1965-1981: First Economic Transition—Industrialisation

Land reform policies, in combination with economic assistance, facilitated Taiwan's economic development. A further series of policies in the 1950s and 1960s then led to a remarkable takeoff in the 1970s. The first was an import-substitution policy aimed at making Taiwan self-sufficient by producing inexpensive consumer goods, processing imported raw materials, and restricting other imports. Considering the relatively small scale of Taiwan's domestic economy, the government adopted a second policy of export promotion in the late 1950s that continued throughout the 1960s. Using Japan as a model and following US advice, the resource-poor and labour-rich island began to expand its light industries. Export-processing zones free of bureaucratic red tape were set up with special tax incentives to attract overseas investment. Within a short time, Taiwan had become known internationally as an exporter of products of which it was the original equipment manufacturer.

Between 1962 and 1985, Taiwan's economy experienced its most rapid growth in history: an average annual growth rate of nearly 10 percent, or more than twice the average economic growth rate of industrialised countries during this period. Equitable distribution of income was a major objective in the government's economic planning. In 1953, the average income of the top 20 percent of the population was estimated at 20 times that of the bottom 20 percent. In the 1980s, this 1:20 ratio was reduced to between 1:5 and 1:4 (GIO, 2006).

A key element in Taiwan's steady economic growth was the implementation of universal education throughout the island. After 1949, the government expanded education to raise literacy rates. In 1951, 34.6 percent of the population of six years and older were illiterate. This figure had dropped to 15.3 percent by 1969 (and to 2.84 percent of the population over 15 years of age in 2004). In 1968, six years of compulsory education, a right stipulated in the Constitution, was extended to nine years. Additional technology and vocational colleges also met the needs of the industrial sector during the economic takeoff (GIO, 2006).

⁵⁹ <http://www.taiwanembassy.org/ct.asp?xItem=11793&ctNode=2237>, accessed on 08/11/07

7.2.4 1980 onwards: A Second Economic Transition— 'Informatisation'

Since the 1980s onwards, Taiwan has been facing a significant economic transition. In 1986, the Taiwanese government proposed a Plan for Economic Transition. During this period, the developmental policy of Taiwan focused on the 'information industry', and the government hoped that 'information industries' would lead to 'informatisation' and then build 'an information society' or 'a knowledge-based society'. I am using quotations when mentioning these terms because academically, they have attracted heated discussion on the definition and implementation since the 1960s, and there is a need to consider how they were being employed by the Taiwanese government. I will present this observation in the below section. This also provides a background for understanding the analysis of digital divide policy conducted in Chapter 8 in terms of how it is employed in interpreting the digital divide in Taiwan.

7.2.4.1 1980-1989: Shaping a Shared Understanding of 'Information', 'Informatisation', and 'Information Society' Accompanied by the Government and the Civil Society

The public understanding of 'information', 'informatisation', and 'information society' was initially shaped by the government. During the 1970s, Taiwan was facing many difficulties, e.g. global energy crisis, global economic recession, Taiwan's leaving the UN, and China's open-door policy, etc. This series of events forced Taiwan's officials to look for a way forward for Taiwan, and during this period, the technological elite chose to develop the electronic and semiconductor industries to boost Taiwan's economy. This decision was taken at an inter-ministerial conference in 1976, whose topic was the transformation of scientific and technological development in Taiwan. During the conference, 'information industry' was being equated with the electronic and semiconductor industry. Within this context, 'information' for the then Taiwanese government was mainly denoted to hardware, instead of the content. Moreover, 'informatisation' under these circumstances was used to refer to the transition of the economic structure from light and heavy industries to information industries; and 'information society' referred to 'a society where the adoption of computers is spreading over everyday life' (Personal Interview, TW 07. November 2005).

The Institute of Information Industry (III) played an important role when framing the image behind 'information', 'informatisation', and 'information society' in the 1980s. The Institute was launched as a non-government institution in 1979, and according to

the introduction on its official website, acts as 'a non-governmental organisation, jointly sponsored by the Taiwan government and prominent private enterprises', and the purpose of its establishment is to strengthen 'the developments of information industry in Taiwan'. It further indicates that 'since its inception, III has been a source of vision, innovation, technological excellence and a major contributor to Taiwan's development as a significant player in the global ICT area. Whilst dedicated to reinforce industrial development, III has also helped promote full utilisation of ICT technologies hence advancing the establishment of modern information society development in Taiwan'. From this introduction, the position and role of III in Taiwan's development in 'information' and 'information society' is revealed.

Furthermore, III took an important role in fostering Taiwan's informatisation in terms of promoting the use of computers. In the publications celebrating its twenty-fifth birthday, III evidenced its achievements in promoting Taiwan's informatisation. These publications reveal that 'computer' was not an established noun in Taiwanese society until 1979 (the year of the birth of III) and that III gave a uniform definition to it, which has been widely recognised in media coverage and everyday life (Hung, 2004). As argued in this book, before 1979, Taiwanese people had no definite ideas about 'computers'. It was in 1980 that, III for the first time hosted the event called 'Information Month' (資訊月), in which most internationally popular computer companies gathered together in order to promote and sell their products. This event has a long history and still takes place every year until now. According to III's statistics, there were 19.81 million visit counts between 1980 and 2001 (*UDN News*, 24/08/2001), which is only slightly less than Taiwan's population of 22.4 millions of 2001. Through this event and its title, computer and information has been connected in the minds of the public. This reveals that for III, information is taken as 'hardware', and III highly emphasises computers' role in 'informatisation'.

From the naming and interpretation, it also reveals III's highlighting computers' role. In Chinese, the term 'computer' had two popular translations; one is based on the understanding of a calculator in the industrial era, taking the computer as an advanced calculator and therefore calling it 'electronic calculator' (*dian zi ji suan ji*, 電子計算機) literally. With more understanding about the functions of computers, it seems to people that computers are like human beings' brains, but much more efficient and developed. Nowadays, computers in both Taiwan and China, are translated as 'electronic brains' (*dian nao*, 電腦) in order to symbolise their many functions; the metaphor of a brain will not die as long as it is plugged into a source of electricity. This interpretation

represents III's exaggeration of a computer's functions. And this interpretation is clear in the way that policy-makers develop digital divide policy as will be discussed in the next chapter.

7.2.4.2 Policy Development for Promoting 'Information', 'Informatisation' and 'Information Society'

Meanwhile, Taiwan's first science-based industrial park, the Hsinchu Science Park, was also established to upgrade industries. Labour-intensive industries, once the mainstay of Taiwan's economy, gave way to technology- and capital-intensive industries. In the 1990s, the electronics and information-technology sectors expanded rapidly to become Taiwan's main industries, accounting for more output and exports than any other sector in the manufacturing industry. The service sector's performance during this stage was outstanding, averaging an annual growth rate of 9 percent. All of these signs indicate that a knowledge-based economy has taken root in Taiwan (GIO, 2006).

Immediately before this period, the Taiwanese government had initiated the 'Ten-Year Plan for Economic Development' in the 1980s, which can be labeled as the period of the First Ten-Year Plan. During this ten-year period, the production of information technology achieved great performance in quantity and in reputation around the world (Wang, 1995-1996: 558). In the subsequent decade of the Second Tenth-Year Plan, the policy focus transferred from 'production' to 'application'.

The First Ten-Year Plan (10YP1, 1980-1989) specifies important implications for Taiwan's development, and was 'the formative stage for Taiwan's information industry' (Wang, 1995-1996: 558). It symbolised that the developmental focus of Taiwan was to be transformed from traditional industries to information industries. During these ten years, the Taiwanese government focused on hardware development in information industries, and promoted the information and computer industries as 'strategic industries' by means of special government assistance, e.g. granting preferential loan services to computer-related strategic products (Wang, 1995-1996: 557). These efforts made by the government eventually yielded positive outcomes in terms of the quantitative improvement in productivity, as well as the increased value of Taiwanese information products in the world market (Wang, 1995-1996: 558).

However, the development mode during these days mainly rested on overseas OEM (original equipment manufacturer; manufacturer to specifications by purchasers). Many

Taiwanese firms have become meshed in the global sourcing and subcontracting of American multinational firms, serving as critical suppliers of key components and final products (Simon, 1996:121). This means that Taiwan's manufacturers lacked the innovation capacity to become a technological leader in the world during this period. Taiwan's information technology development needed a boost and reorientation to overcome this bottleneck. Under these circumstances, the Taiwanese government transferred its development focus from hardware production and exportation to actively promoting software and the national market to create an 'information society'⁶⁰ (Wang, 1995-1996: 558). This was the motivation for the next ten-year plan—10YP2.

Meanwhile, during this period, Taiwan's economic performance was not as successful as that during 1965-1981. Several reasons accounted for the ending of the successful phase (1965-1981) during the late 1980s (Howe, 2001: 53-54; Cheng, 2001: 34). One was the opening of China in 1988 that it enacted its Regulations for the Encouragement of Investment by Taiwanese Compatriots (*tong bao*, 同胞) (Howe, 2001: 52), which created dilemmas of a new kind for Taiwanese industries (Howe, 2001: 53-54). This dilemma stems from the positive and negative results of China's opening market to Taiwanese. The positive perspective on this policy suggests that China's opening would help speed trade, investment and technology transfer activities between Taiwan and China. The negative perspective worries that much investment has been by small firms that have restricted intangible assets and they need to migrate with and develop local networks. In this case the hollowing out effects in Taiwan might be serious (Howe, 2001: 56).

A second reason for the reduced economic success in the later 1980s was that China's opening occurred in tandem with regionalised production networks, which were driven by demand in markets in Europe, the US and Japan (Howe, 2001: 54). Thirdly, in 1987-1988, the unprecedented 35% appreciation of Taiwan's currency, a result of post-Plaza Accord currency alignment, forced the government to face the pressures of liberalisation (Cheng, 2001:34). Fourthly, the US, a leading economic partner running chronic trade deficits with Taiwan, asked for import liberalisation.

With the achievements made in 10YP1, as well as the difficulties that arose during it, the Taiwanese government looked for solutions to these obstacles, and this served as part of the reason for bringing about the Second Ten-Year Plan (10YP2, 1990-2000). The most distinctive features of 10YP2 were presented in three dimensions. Firstly, 10YP2

⁶⁰ The quotation marks placed around this term have been inserted.

did not only view the information industry as an important export leader, but furthermore, charged this industry with the task of dissemination of information and improvement of the quality of citizens' lives. Secondly, as already mentioned, the development focus transferred from hardware to software. Thirdly, recognising that its access to manpower gave Taiwan a unique advantage, the government targeted research and development so as to fully utilise this resource.

Apart from the development of information industries, another crucial project in Taiwan's informatisation was the development of Taiwan's National Information Infrastructure (NII). As soon as the US government proposed its NII project in 1994, many countries followed. Taiwan was no exception. Because Taiwan has been close to the US in the recent history of its economic development, and because the US has influenced Taiwan's economic and technological policy via the mechanisms built in the period of US aid, Taiwan has adopted the idea of NII from the US and mimicked it very quickly. This can be seen from the time series of events. In 1994, soon after the US proposed its NII, the Executive Yuan asked economic- and developmental- related ministries to collaborate to form a task force 'NII Promotion Group', which included the Council for Economic Planning and Development (CEPD), Ministry of Transportation and Communications (MOTC), Ministry of Economic Affairs (MOEA), Ministry of Education (MOE) and Research, Development, and Evaluation Commission (RDEC). The KMT, then Taiwan's ruling party, proposed a similar national plan titled 'National Infrastructure Initiative' in 1995 to make Taiwan one of the most informatised countries in the world.

Later in 1997, a project addressed by the Executive Yuan entitled 'National Information Infrastructure Initiative' was released. In 1999, NII set the policy target of getting three million households online in three years, and this policy predominately focused on infrastructure provision. Afterwards, the government continued their promotion of a 'knowledge-based society', and the relevant training programmes for farmers. Although the policy in relation to bridging the digital divide had been made clearer than before, a comprehensive investigation of the digital divide was still lacking at that time.

7.3 New Power, New Task—Power Transition in 2000

From 2000 onwards, in a context of globalisation and trade liberalisation, as well as the rise of neighbouring China as a new economic power, the Taiwanese government is facing new challenges in terms of economic development. In response to this challenge,

the government has taken concrete measures to upgrade Taiwan's industries, conducted financial reforms to foster a more attractive investment environment, and promoted environmental protection to achieve sustainable development. Development plans have been formulated to transform Taiwan into a 'green silicon island' (GIO, 2006). Several major construction projects are also under way.

The difficulties of the economic transition from industrialisation to informatisation forced the government to work out a scheme of national development. Apart from the economic transition, political power also underwent unprecedented transformation. In 2000 the ruling party DPP, for the first time, took over power from KMT which had ruled Taiwan for half a century. Following its triumph at the presidential election, the DPP leader was keen on proposing a national plan to upgrade Taiwan's informatisation. Therefore, in 2000, the government proposed a national plan entitled *Challenge 2008*, which set out the developmental objective for the period 2000-2008, aiming to build Taiwan as the most advanced 'e-country'⁶¹ in Asia. Digital divide policy was later included under the *e-Taiwan* project in this national plan.

The DPP government showed its determination to implement this national plan in terms of setting up a new task force National Information and Communications Initiative (NICI) in April 2001. NICI was designated to accomplish the following missions: to accelerate the development of the IT industry, e-commerce and related business; to improve the efficiency of government services; to promote Internet usage and related applications; and to uplift the competitiveness of the Taiwanese IT Industry.⁶² With the birth of NICI, the NII steering committee was merged into NICI. Figure 7.2 provides the comparison of NII and NICI.

It was in 2001, when the Executive Yuan hosted a 'National Conference on Economic Development', that the issue of the digital divide was first addressed explicitly; however at this time the spotlight was still simply on the construction of infrastructures (Digital Divide Report 2004:10).

⁶¹ In this term, 'e' is pronounced in English, which sounds the same as 'first/number one' in Chinese.

⁶² Source from NICI official website, <http://www.etaiwan.nat.gov.tw/index.php>, access on 12/12/2007.

	NII	NICI
Year of foundation	1994	2001
Ruling Party	KMT	DPP
Chairman	Executive Yuan	Executive Yuan
Committee Members	<ul style="list-style-type: none"> • Council for Economic Planning and Development • Ministry of Transportation and Communications • Ministry of Economic Affairs • Ministry of Education • Research, Development, and Evaluation Commission 	<ul style="list-style-type: none"> • Ministry of Interior • Ministry of Foreign Affairs • Ministry of National Defense • Ministry of Finance • Ministry of Education • Ministry of Justice • Ministry of Economic Affairs • Ministry of Transportation and Communications • Overseas Chinese Affair Commission • Directorate-General of Budget, Accounting Statistics • Government Information Office • Department of Health • Environmental Protection Administration • Council for Economic Planning and Development • National Youth Commission • National Science Council • Research, Development and Evaluation Commission • Council of Agriculture • Council for Culture Affairs • Council of Labour Affairs • Committee of Law and Regulations • City of Taipei • City of Kaohsiung • Industrial Technology Research Institute • Institute for Information Industry • NICI Civil Advisory Committee
Objectives	<ul style="list-style-type: none"> • The construction of Information Superhighway • Upgrade national competition • Upgrade living standards • Create employment opportunities • Provide national medical standards • Government with high efficiency • Provide a life-long learning environment for citizens • Create a more participatory and open democracy 	<ul style="list-style-type: none"> • Government with high efficiency • Industries with high competitiveness • Information society with high quality • Universal applications of IT and telecommunication technologies with high penetration

Figure 7.2 Comparison between NII and NICI (Source: Compiled by the Author)

7.4 Taiwan's International Standing⁶³

The above sections provide a background to facilitate understanding of Taiwan's domestic digital divide policy making. This section goes on to examine Taiwan's motivation in cooperating with international organisations to help less developed countries bridge their domestic digital divide and how this was influenced by Taiwan's particular *de facto* international standing—no longer recognised legally internationally but with substantial links with some international organisations and some states. The detailed description and discussion of Taiwan's participation in international projects in relation to bridging the digital divide will be provided in Chapter 8.

Although Taiwan has been frequently mentioned alongside three other Asian settings—Singapore, South Korea, and Hong Kong—as 'four little tigers' for her astonishing economic performance, Taiwan's political status in international organisations has been hindered by China,⁶⁴ e.g. Beijing has sought to exclude Taiwan from membership of international organisations (Yahuda, 1996: 1328) after Taiwan's leaving the United Nations in the 1970s. As Taiwan's former President, Lee Teng-hui (1999) stated in a published paper, the people of Taiwan have long endured diplomatic isolation, which essentially began with its expulsion from the United Nations in 1971. Lee (1999) further explained that under pressure from Beijing, many countries were forced to switch official recognition from Taipei to Beijing. Eventually, Taiwan was gradually excluded from most international governmental organisations. Dropping from 37 in 1966 (Yahuda, 1996), Taiwan was holding full membership in 18 international governmental organisations in 2003, most of which deal with regional agriculture, economics, science and technology, (including the World Trade Organisation, Asian Developmental Bank, Asia-Pacific Economic Cooperation and Asian Productivity Organisation). Additionally Taiwan has observer status in 10 world groups (Fanchiang, 2003).

Thus, in order to have presence at an international level, the Taiwanese government has seized every opportunity to participate in international conferences to join projects that

⁶³ The usage of this term refers to that used by Yahuda (1996). In his paper, he states that using this concept of 'international standing will be easier to examine issues that may take a legal form but are in substance political, such as diplomatic recognition, membership of international organisations, base of participation in international society and so on' (1996:1325). Because this section describes Taiwan's difficulties in gaining membership into international organisations, the concept of 'international standing' is suitable.

⁶⁴ For detailed events, please refer to the official website of the Ministry of Foreign Affairs, <http://www.mofa.gov.tw/webapp/lp.asp?ctNode=1174&CtUnit=53&BaseDSD=7&mp=1>, accessed on 08.07/2007

assist other underdeveloped countries in tackling poverty. This strategy was proposed in 1973 when the then Premier Chiang Ching-kuo outlined a policy of ‘total diplomacy’, calling for the mobilisation of all available resources including political, economic, scientific, technological, cultural and sporting to develop substantial links with states that had transferred diplomatic recognition to Beijing (Yahuda, 1996: 1330). The goal of this strategy was not only to escape isolation, but also to use Taiwan’s international standing to gain political advantage (Yahuda, 1996:1330).

Since scientific and technological progress has long been represented as a central condition for its standing and for its ability to compete internationally, Taiwan has provided an extensive range of technical aid especially to countries in Africa and Latin America (Yahuda, 1996:1332). In the agrarian and industrial eras, the Taiwanese government actively sent agricultural advisory teams to developing countries, to equip them with agricultural knowledge and help them develop agriculture to feed their people. In the era of so-called informatisation, the Taiwanese government actively participates in projects to help build a global information society. Figure 7.3 presents Taiwan’s active participation in APEC. Through the presentation of technological development and through presence at international occasions, Taiwan is thus promoting her national identity in front of other countries. The Taiwanese government has been investing considerable resources in initiatives of global benefit, such as humanitarian aid and measures to counter terrorism and international crime. Technology has been an extremely important means by which Taiwan has sought to gain in status. This context is reflected in Taiwan’s proposal of ADOC and its enthusiasm to participate in building ADOC in less developed countries, which will be discussed in Chapter 8.

Time	Events
1989	The birth of APEC
1991	Taiwan joined APEC as a member
2000	New Economic Plan—Building a Digital Society Taiwan proposed the ‘Transforming the Digital Divide to Digital Opportunity’ project
2001	E-APEC
2003	Taiwan proposed ‘ADOC’ project and implemented this project

Figure 7.3 Taiwan’s Participation in APEC (Source: Compiled by the Author)

7.5 Conclusion

This chapter explored the national contexts within which the case study of Taiwan will be analysed in the next chapter. I presented Taiwanese national contexts from many different angles, i.e. geographical, political, and economic contexts and combined this with a discussion of Taiwan's international standing in order to provide a background to the discussion in the next chapter of how and why the policy-makers in Taiwan interpret the digital divide and make digital divide policy.

With the presentation of the structural contexts, I described and synthesised the geo-economic dimension in terms of Taiwan's developmental trajectory and pointed out reasons why the Taiwanese government is keen on bridging the regional digital divide. The geographical context provides an explanation for the phenomenon of the digital divide between rural and urban areas, which is the most prominent digital divide in Taiwan, when compared to other dimensions, i.e. gender, age, etc.

In Section 7.2, the discussion of the economic context divides Taiwan's development stages into three main periods—agrarian, industrial and informatisation. I first revealed how the Taiwanese government and the civil society organisation worked together to set up a shared understanding of 'information', 'informatisation' and 'informatisation society'. These interpretations reveal one of the main concerns of the Taiwanese government in promoting 'informatisation', i.e. economic transition to upgrade Taiwan's industries. Moreover, concerns about upgrading industries and overcoming economic transition in turn enhance Taiwan's 'informatisation' along with the provision of policy, infrastructures, education, etc. Therefore, the image of Taiwan's 'informatisation' emerged as a means of achieving the economic transition from industrialisation to 'informatisation'.

Although the previous ruling party KMT had completed the main infrastructure for informatisation, e.g. the NII programme, the problems caused by unbalanced development within the country have been emerging, creating the so-called 'digital divide' (the definition of this term is to be discussed in the next chapter). This provides the political context in which the digital divide policy is emerging. Therefore, the new ruling party DPP has on the one hand been keen to look for a novel way to lead Taiwan to survive the economic transition, and on the other, to tackle the deficits left from the uneven development between areas.

Apart from the national contexts, e.g. economic and political aspects, digital divide policy for Taiwan also serves as a symbol that Taiwan has taken this global issue seriously and Taiwan has the ability to solve this problem within Taiwan and to help less developed countries. Coupling of national and international contexts, digital divide policy is taken to be a political strategy to promote Taiwan's international standing. This observation reveals that the digital divide is not merely a social phenomenon to be dealt with, but also an opportunity for Taiwan to gain its international presence. Having undergone certain historical events, e.g. losing membership of the UN, the Taiwanese government is now seeking to improve its international standing via every possible channel. Proposing and participating in ADOC is seized as a chance for Taiwan to gain international recognition for its potential contribution to assisting less developed countries in ameliorating their digital divides.

Thus, within the contexts summarised above, as well as the international contexts mentioned in Chapter 4, the Taiwanese government made the *e-Taiwan* Programme to promote advanced 'informatisation', and the 'digital divide policy' was named and implemented. However, what is worthy of note is that, within the aforementioned national contexts, the participant ministries/institutes involved are more concerned with the technological dimensions of the digital divide, and their main goal is to achieve a painless, successful economic transition, making Taiwan an advanced country in the information era. With the advancement of technological development, the Taiwanese government further utilises its advantage in order to promote its international standing in the world. This background understanding will underpin the analysis of the data discussed in the next chapter.

Chapter 8

Digital Divide Policy-Making in Taiwan

In contrast to China, the Taiwanese situation provides a less centralised model of digital divide policy-making. This subsequently influences the order of this chapter. It shows that the activities of bridging the digital divide were initiated by a non-government institute, and that they came about before official digital divide discourses emerged. In section 8.1, I present the actions taken to bridge the digital divide before 2003. This year is chosen as a watershed because the World Summit on Information Society (WSIS) Phase One was held in this year and the Taiwanese government embarked on a systematic digital divide policy immediately after the Taiwanese delegation came back from WSIS. In this section I include the actions taken by the Institute for Information Industry (III) to bridge the digital divide since the 1990s, the telecentres built by the Research Development Economic Commission (RDEC) and the publications of digital divide reports conducted by academic researchers. This indicates that the Taiwanese government and Taiwan's civil society were aware of the issue of the digital divide before the WSIS. Section 8.2 presents official digital divide policy commencing from 2003. Section 8.3 deals with the current project geared towards bridging the digital divide—and especially the Digital Opportunity Centre (DOC), looking at the implementation of policy, the actors participating in the policy implementation, and the debates between actors. Section 8.4 draws attention to an Asian regional project—APEC Digital Opportunity Centre (ADOC), scrutinising how the Taiwanese government utilises this chance to promote its international standing. Section 8.5 concludes this chapter.

8.1 Actions Taken to Bridge the Digital Divide before 2003

This section firstly looks at a less centralised model (comparing to China) in addressing the digital divide by III since the 1990s onwards. Secondly, it analyses the Telecentre project held by RDEC in 1999. Then, it investigates the digital divide reports conducted from 2001. All of them took place before 2003 when the Taiwanese government officially made the digital divide policy.

8.1.1 A Less Centralised Model in Addressing the Digital Divide by III (1990s)

As mentioned in Chapter 7, with the domestic contexts of economic transition and the

government's emphasis on 'informatisation' in the 1980s and the consequent responsibilities for developing information industry, III has been playing a major role in promoting the use of computers for the public and trying to create an 'information society' (the definition of this term was mentioned in section 7.2.4) for Taiwan. From the 1990s on, as III's publication mentions, III has explicitly paid attention to the phenomenon of 'the digital divide'. As what III understood at this time, the 'digital divide' was caused by 'uneven development of ICTs' between areas, and the way of reducing this gap was to take actions in terms of providing technology access (Hung, 2004: 7).

In Taiwan, '*shu wei luo cha*' is used as the translation of the digital divide in order to indicate a 'difference' between groups in adoption of the ICTs. This difference is not unbridgeable, but marks a figurative difference between groups. Another possible translation of 'divide' has been discussed in Chapter 6: the Chinese government selected '*hong gou*' for 'divide'.

A natural disaster in the late 1990s increased III's determination to promote the use of ICTs. The fatal earthquake on 21st of September, 1999 ('921 earthquake'⁶⁵ for short) provided further impetus for III to equip people in remote areas with information technology. This group of people depends mainly on agriculture and thus lost both their properties and their means of generating income through the earthquake. III was fully aware of the despair caused in the wake of the earthquake and therefore began to recruit volunteers from universities to build computer centres to help rural residents use computers and the Internet. III hoped that the farmers could utilise the Internet to sell their products online and also rebuild the local economy. Thus, the digital divide issue was closely interwoven with the reconstruction of the remote counties that had suffered from tremendous destruction during the earthquake.

Another motivation to bridge the digital divide in remote areas came from Taiwan's entrance into the World Trade Organisation (WTO) in 2001. After entering the WTO, Taiwan's farmers struggled in the force of competition from low-price imported fruit and other agricultural products from other countries. As noted in Chapter 7, there exists regional disparity within Taiwan. People living in remote areas of Taiwan earn their

⁶⁵ The earthquake occurred on the 21st of September, 1999, which was referred as 921 by Taiwanese people. The quake's major impact was in the mountain region in the centre of the island. According to the BBC news report on the 28th of September, 1999, the official death toll stands at 2,105, with 8,713 people injured, 141 missing or trapped and 100 stranded in remote areas after one week since the event took place. <http://news.bbc.co.uk/1/hi/world/asia-pacific/460170.stm>, accessed on 17/07/07

living from agriculture. Suffering from the '921 earthquake' as well as from competition following Taiwan's entrance to WTO, the farmers in remote areas are concerned for their future. The combination of these two important historical events has made III much more concerns about how to connect ICTs to farmers' daily lives, and to make ICTs helpful in their daily life.

From the above discussion, it is clear that the actions to bridge the 'digital divide' were taken a long time before the government developed official digital divide policy. Additionally, this reveals that before the US started to publish its five digital divide reports, the idea of a 'digital divide' had emerged from a non-government organization even though the term 'digital divide' was not cultivated at that time. Finally, the definition of the digital divide during this period overwhelmingly focused on access to technology, and this definition was influenced by III's goal of promoting computer use. This definition is now used in digital divide policy-making but has attracted much criticism from within academia, which will be shown later in this chapter.

8.1.2 Telecentres by RDEC (1999)

A short while after III began actions to bridge the digital divide, RDEC began to build telecentres in remote areas in 1999. This is the earliest initiative that I have identified as geared to inclusion taken by the government. Telecentres were the form of initiative embraced in the general expectation of 'ICT for Development' at its height around 2000 (Personal Interview, TW08. November 2005), which were also built under the names of multipurpose community telecentres, public Internet access points, or information kiosks (Bailur, 2007).⁶⁶ This initiative was at its height before Taiwan's explicit digital divide policy was developed. This also coincides with the observation in section 8.1.1 that Taiwan was taking actions to bridge the digital divide before this term 'digital divide' was imported from the US and used in policy-making.

The launch of telecentres was included in the e-government programme, which was the responsibility of RDEC from the late 1990s onwards. In tandem with the e-government programme, telecentres provided venues for people without computers and the Internet to go online and have one-way or two-way communications with the government. The telecentre programme has undergone two stages. The first stage was initiated in 1999 with the project budget US\$ 1.1 million under the NII Promotion Programme. RDEC

⁶⁶ More history of telecentres development can be found in Bailur, 2007.

finished the development of 141 telecentres in remote areas⁶⁷ in 2001. The second stage began in 2002, under the scheme of *Challenge 2008: National Development Plan*, and RDEC continued to develop 71 telecentres in 2003. The telecentres exhibit two models: one was called the 'PC-model', providing personal computers, printers and web-cameras for the residents; the other one was called the 'Kiosk-model', equipped with a wall-mounted Internet computer similar to a public telephone. RDEC in the first stage adopted centralized management but only 30 out of 141 telecentres survived by the end of 2002 due to the difficulties facing this project, such as costly maintenance fees, improper operation and lack of collaboration with local communities. In order to solve these difficulties, RDEC decided to transfer the responsibility for implementation to local government bodies. Additionally, private businesses participated in this project to provide personal computers and other equipment (Lin, 2005).

8.1.3 Digital Divide Reports (since 2001 onwards)

Since RDEC became aware of the issue of the digital divide, it started to delegate to academics to conduct national surveys on the digital divide in Taiwan from 2001 onwards. These digital divide reports symbolise the perception of the digital divide as a problem worth noticing and in need of resolution by the government. The first survey was conducted in 2001 and the first report published in 2002. Up until 2006, five national digital divide reports have been published.⁶⁸ During the course of the surveys, the internationally changing definitions of the digital divide have been employed, and the results of these surveys serve as references for digital divide policy-making (Personal Interview, TW02. November 2005).

Other countries' methods of measuring the digital divide were drawn upon when researchers embarked on conducting these surveys (Personal Interview, TW01. March 2005; Personal Interview, TW05. November 2005). In the very early stage of conducting surveys, researchers reviewed a wide range of literatures from Asian countries (e.g. Japan, Korea, and Singapore), EU, and the UK. In particular, they gained a very comprehensive understanding of the US's measurement (Personal Interview, TW01. March 2005). This shows that Taiwan not only aligns with external definitions of the digital divide, but also with ideas about how it might be assessed. Such a move may

⁶⁷ The definition of remote areas in this initiative is 'the total number of remote villages is 702. Each village or borough owns a small territory normally with population under 1000 in rural areas' (Lin, 2005: 4).

⁶⁸ The five reports can be accessed on the official website of RDEC, <http://www.rdec.gov.tw/ct.asp?xItem=19790&CtNode=8706>, the latest access on 11/09/07

mean bringing in ideas about the dimension of the digital divide. Taiwan also takes on board that there is a gender divide in this period, which figured highly in the US and EU discussion. This is also an indicator of the influence of international discourses, as well as a shift from concern with physical access to focus on use of ICTs. This shows that the researchers learnt from other countries that I mentioned in Chapter 2 as 'social learning'.

However, these researchers were not satisfied with what they had learned from the measurements of the US. The researcher continued,

We found that the measurement the US took then was not sufficient to comprehensively represent the problems. Concern about access does not fully sketch out the problem of the digital divide. We found that it was necessary to add something to the measurement based on Taiwan's context, e.g. high penetration rate of Internet use. (Personal Interview, TW01. March 2005)

This view implies that the applicability of one concept exported from other countries needs to be taken into more consideration if it is to fit into the national context. The idea of domestication described in Chapter 2 is applicable in understanding this change in measurement of the digital divide. In this case, the researchers who conducted digital divide reports have referred to a generic measurement of the digital divide adopted by the US, which represents the first element involved in the idea of domestication—selective uptake of generic prescription (Brosveet and Sørensen, 2000; Williams, 1999). Moreover, the other element of the idea of domestication, which is adapting the generic prescription to local circumstances, is also embodied here since the researchers noticed that 'it was necessary to add something to the measurement'. Once recognising this need, the researchers started to make what, in their opinion, was a suitable measurement for Taiwan. As another interviewee stated,

We found the emphasis should be put on 'application', i.e. the 'behaviour' aspect. The fundamental infrastructures are well-built in Taiwan; therefore we now should pay attention to 'e-impact', a concept that was appropriated from EU. EU emphasises e-medicine, and Taiwan should also pay attention to this aspect. As far as Taiwan is concerned, its uniqueness is its development of e-government, a field which has gained great progress, and good performance in public engagement. (Personal Interview, TW06. November 2005)

The changing views in Taiwan also mirror the critiques discussed in Chapter 4 of early

concepts of the digital divide, e.g. too much emphasis being placed on access to technology. When the first survey was published in 2002, the digital divide had complex definitions. The researchers who conducted this first survey stated in the report that:

The definition of the digital divide was not comprehensive. Therefore, we expanded the dimension of access to two sub-concepts—access to the Internet, and Internet users' behaviour. Then we brought in the idea of 'information literacy' to include three sub-ideas—general literacy, information technology literacy, and Internet literacy. However, these two ideas—information access and information literacy—are not confined to the resources one holds. On the contrary, we will develop these two concepts to analyse how individuals apply information technology in his/her daily life and workplace (*2002 Digital Divide Report*, p.5).

Here, the researcher separated the idea of information from the technology, which for III has been used in the 1980s and 1990s. The dimensions of measurement have more or less changed from the first report in 2002 to the latest one in 2006, corresponding to what the researcher told me during the interview that 'the meaning of the digital divide is not only diversified, but changing' (Personal Interview, TW06, November 2005). As mentioned earlier, the researchers took a two-dimensional measurement of the digital divide in the first report—information access and information literacy, which highlighted the concern extending from 'access' to 'literacy' (*2002 Digital Divide Report*). This pioneer report concluded by suggesting that there was a close connection between ICTs skills and traditional literacy and media literacy,⁶⁹ which were further developed by the following surveys.

Drawing on suggestions from the 2002 report, the 2003 report was published, and adopted a broadening and delicate four-dimensional measurement. The four-dimensional measurement spanned two sections—'information possession' and 'information application'. Under the section of 'information possession' are 'information access' and 'information literacy'. 'Work application and learning' and 'daily-life application' are put under the section of 'information application'. The expanding of the dimensions of the measurement indicates that the definition of the digital divide was proliferating and changing. After the second report was published, the dimensions of measurement have remained fixed.

⁶⁹ Traditional literacy in this report encompasses the abilities of language competency in listening, speaking, reading and writing as well as numerical skills. And media literacy refers to the ability to employ, interpret, evaluate, analyse and produce media contents.

8.2 Systemic Policy to Bridge the Digital Divide since 2003 onwards

Digital divide policy is included in the *e-Taiwan* programme in terms of the subsection of e-opportunities in 2003. This *e-Taiwan* programme puts 'e' in front of each subsection, and particularly emphasises the technology itself. This 'e-everything' (Dutton, 2005: 16) programme seems to hold the very hope that the answer to the problems of development can be found (Heeks, 2002: 1) with the adoption of ICTs. Prior to investigating digital divide policy in section 8.3, there is a need to look overall at the *e-Taiwan* programme.

8.2.1 e-Taiwan Programme

In May 2002, NICI and a group of ministries, e.g. Ministry of Education, Ministry of Economics, worked together to launch the *e-Taiwan* programme under the *Challenge 2008 Plan* and it immediately became a major component in this national development plan, which is revealed by the integration of a wide range of resources from multiple government agencies. Figure 8.1 presents the budget for bridging the digital divide in 2005-2008, which shows an increasing trend. The policy titled with an English 'e' has double meanings. One indicates that the goal of this policy is to develop a digitalised Taiwan, and the other lies in the fact that the sound 'e' (in English) means 'number one'/'first'/'best' (in Chinese), thus indicating that Taiwan attempts to become the best country in the information era.

In 2003, after hearing the report by the Taiwanese delegation that had attended WSIS, the Executive Yuan Premier instructed all governmental agencies to work actively to eliminate the digital divide in Taiwan. Figure 8.2 presents the executive sequences for bridging the digital divide. One of the participants who attended WSIS in 2003 recalled,

It was after 2003 that the officials who attended WSIS were impressed [...]. They thought that WSIS was such a crucial summit as more than sixty national leaders attended, and more than two hundred and fifty ministries coming from so many countries. Therefore, they immediately drafted a proposal to the then Premier. (Personal Interview, TW02. March 2005)

As a result, it was in 2003 that a policy with the name of bridging the digital divide was formally developed and put under the scheme of the *e-Taiwan* programme. This is the first time the Taiwanese government made a policy clearly announcing that it aims to bridge the digital divide. Thereafter, in March 2004, the *Bridging the Digital Divide Initiative*

was put into practice. In order to show its determination, the government listed this *Initiative* under the scheme of the *e-Taiwan* programme (the hierarchy of *Challenge 2008 Plan*, *e-Taiwan*, and *Bridging the Digital Divide Initiative* is presented in Figure 8.3). The central project in bridging the digital divide was carried out via the launch of DOC, of which I provide a detailed analysis in section 8.3.

As its official website shows,⁷⁰ the *e-Taiwan* programme is focusing on designing and planning programs for the development of the nation's information and communications infrastructures and applications. According to the policy text of the *e-Taiwan* programme, it is directed to an infrastructure-based national development, as shown in the extract below:

It includes infrastructure, industrial development, application, and demand. The most important aspect of infrastructure development is to establish an information and communication environment for installing broadband Internet in every household. It is expected that six million households in Taiwan will enjoy the convenience of broadband Internet by 2008. The major effort in application and demand will promote the use of the Internet in government, business, and society to expand local market demand and upgrade relevant industries. This plan will transform Taiwan into to a high-tech service island. (The website of *e-Taiwan* Programme, English version)⁷¹

The original framework of the program was constructed around five major pillars: Infrastructure, e-Society, e-Industry, e-Government and e-Transportation. The *e-Taiwan* programme has been regularly submitted to progress reviews and has been revised according to changing requirements and conditions. Since June 2004 when Premier Yu Shy-kun recommended that *e-Taiwan* programme bring greater benefit and convenience to the public, several key applications including tele-working, healthcare and e-governance have been planned which adopt a more user-oriented approach in expanding the content of e-society initiatives. In addition, e-Transportation was included under the e-Society pillar.

Furthermore, cultural perspectives and universal access to technology have been incorporated into a new component of the *e-Taiwan* Program, the *e-Opportunity* plan. The *e-Opportunity* plan is part of the changing focus of the *e-Taiwan* programme, which is intended to contribute to bridging the digital divide. The subsection of e-Opportunity

⁷⁰ <http://www.etaiwanexpo.nat.gov.tw/english/1-origin/ori-1.asp>

⁷¹ <http://www.etaiwanexpo.nat.gov.tw/english/1-origin/ori-1.asp>, accessed on 12/12/2007.

forms the core initiatives of the *e-Taiwan* program, with the aim of swiftly bringing the benefits of ICTs to everyone in Taiwan.

In regard to the aim of e-opportunity, it is further composed of three sub-sections—bridging the digital divide between rural and urban areas; bridging the digital divide between industries; helping other countries to bridge the digital divide. Since 2005 onwards, the government provided a total budget of US\$ 0.22 billion for the following four years to complement this Initiative via economic, educational and social dimensions. It is hoped that under the *e-Taiwan* programme, the government will build three hundred DOCs in the four years 2005-2008 throughout Taiwan.

Year	Amount	Note
2005	2.97	The budget was cut by the Legislature Yuan to US\$ 1.9 million
2006	5.60	
2007	6.25	
2008	6.25	

Figure 8.1 Budget of National Expenditure on Bridging the Digital Divide by Year (unit: US\$ millions) (Source: NICI. Personal Interview, TW04. March 2005)

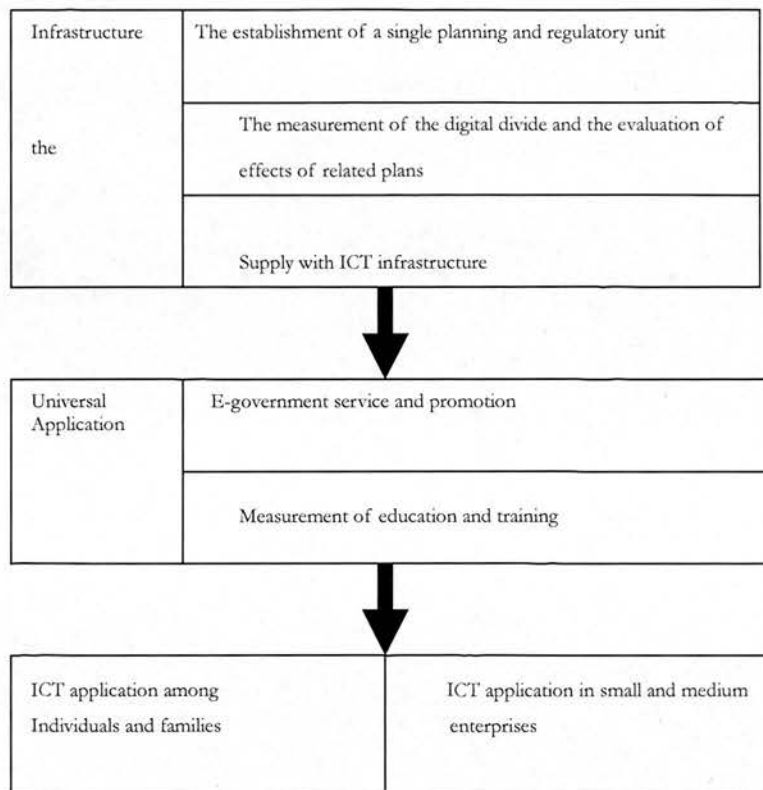


Figure 8.2 Lin's Executive Sequences for Bridging the Digital Divide (Source: Lin, 2003: 50; translated by Hung, 2004: 19)

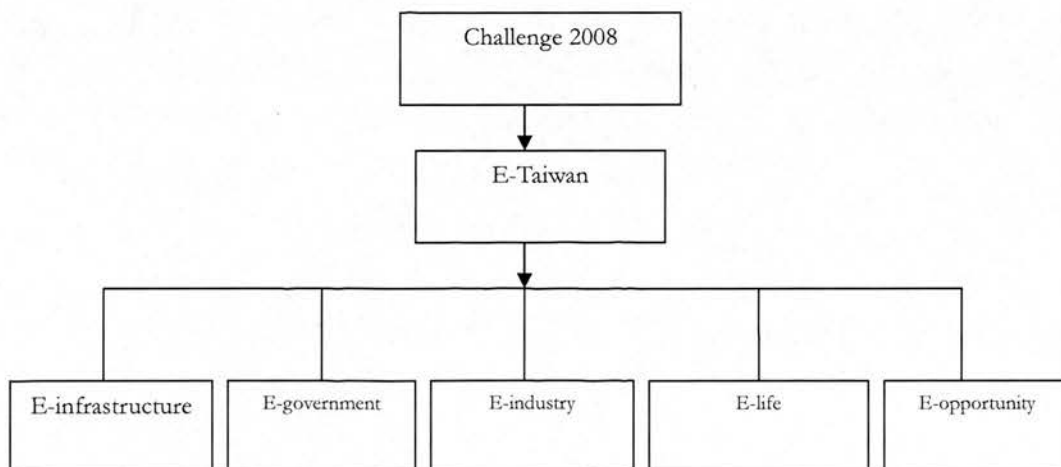


Figure 8.3 e-Taiwan Programme Structure (Source: e-Taiwan programme website)⁷²

⁷² http://www.etaiwan.nat.gov.tw/content/application/etaiwan/egenerala/guest-cnt-browse.php?cnt_id=779, accessed on 12/12/2007.

8.2.2 Dominant Discourses in the e-Taiwan Programme

In Chapter 2, I discussed that policy-makers will make claims to frame the problem. This section, I synthesise three types of discourses the Taiwanese government used to emphasise the necessity of ICTs, the first two of which present the myth of technological determinism discussed in Chapter 2 as well as in China's case study in Chapter 6. The third one corresponds to Taiwan's current international standing as mentioned in Chapter 7.

8.2.2.1 National Competitiveness

'National competitiveness' is a repeated concern in the policy text of *e-Taiwan*.⁷³ In the first place, the policy text *Challenge 2008: National Development Plan* emphasises the important role played by electronics, information, and telecommunications infrastructures in human society. It states that 'the technological revolution steered by ICTs has revolutionary influences on economics, society, and culture' (*Challenge 2008: National Development Plan*, p.155). It then further states that 'Taiwan now is facing the challenges stemming from the global economic recession and industry transferring abroad, therefore how to best utilise ICTs to enhance innovation and application to upgrade industrial competitiveness and build a high-quality "e-Taiwan" turns out to be a crucial and urgent issue' (*Challenge 2008: National Development Plan*, p.155). Thus, 'the objective of *e-Taiwan* is to advance Taiwan as a country with a knowledge economy, to promote the competitiveness of industries, and to build an efficient government, which will eventually make Taiwan the most advanced country in Asia' (*Challenge 2008: National Development Plan*, p.155).

Regarding the strategies this programme outlined, it is clear that infrastructure is the tool which the state expected to use to build Taiwan as a digital island, helping it to become the most advanced country in Asia. This expectation can be seen in the statement that 'this programme hopes to build an e-Taiwan via a comprehensive economic developmental plan, achieve the goal of Taiwan as a high-technology service provision island, and promote Taiwan as the most digitalised country in Asia' (p. 155). In this programme, the Internet was taken as the main driving force to further Taiwan's entrance into the global economy, 'directly challenging the traditional economy supported by capital and labour'. It further suggested that in such a global economy, a

⁷³ For example, *Challenging 2008: National Development Plan*, 2003: 155, 158, 164.

knowledge economy supported by knowledge, ICTs and speed will become the determinant factor driving national development.

When previous policy texts are considered, it is clear that the goal of building Taiwan as a digital technology centre under the *e-Taiwan* programme, i.e. High-Tech Service Island, is not novel. The ongoing, but suspended national programme 'Asia-Pacific Regional Operation Centre' (APROC)⁷⁴ serves as the best example that the Taiwanese government has persistently made efforts to survive in the ever more challenging economic environment facing Taiwan in the era of globalisation. APROC was first initiated in 1995 when KMT was then the ruling party. However, the progress was judged to have been unsatisfactory, therefore when DPP gained power, APROC was suspended.

The aforementioned 'centres' the Taiwanese government has been eager to build (either APROC or the current High-Tech Service Island under the *e-Taiwan* programme) have several things in common. First of all, these plans place a great deal of emphasis on infrastructures. Secondly, they are concerned more with national competition than social development or the development of individual citizens. This observation echoes the evidence from the introduction to APROC which states that 'the six centres will stand upon solid foundations laid over many decades of successful economic development that have seen Taiwan transformed from an agricultural backwater to a modern industrial society and a significant player in global trade'.⁷⁵ Therefore, it seems that the high-ranking digital divide policy-makers care about the digital divide because they define it in a particular way, i.e. in terms of economic growth, and that they focus on how to develop advanced infrastructure in order to bring about economic development.

8.2.2.2 Social Development

In addition to concern about national development in policy texts, the implementation of digital-divide policy draws attention to the social level, concerning regional equality. This concern is based on an understanding that the digital divide is rooted in socio-economic status. As the official of RDEC stated, 'the bridging is to reduce the

⁷⁴ APROC aims to develop Taiwan into an Island of Science and Technology that is also a gateway to the Asia-Pacific region, the market of markets of the 21st century. It consists of six centres--the Manufacturing Center, the Sea and Air, transportation Centers, the Financial Center, the Telecommunications Center, the Media Center. More details please refer to official website of APROC, http://www.cedi.cepd.gov.tw/aproc/html/links_e1/2.html, accessed on 17/07/07.

⁷⁵ http://www.cedi.cepd.gov.tw/aproc/html/links_e1/2.html, accessed on 17/07/07.

original divide' (Personal Interview, TW08. November 2005). The original divide he mentioned is the regional divide, as he described, 'the people living in remote areas can hardly have the same opportunity as those staying in urban areas'. Therefore, in his mind, 'the government should connect the digital divide policy to what the rural community needs' (Personal Interview, TW08. November 2005). He also connected social development with community development in bridging the digital divide. The spirit of digital divide policy in social development is illustrated in the policy I am going to present in section 8.3.

8.2.2.3 International Standing of Taiwan

As mentioned in the previous chapter, the Taiwanese government has made efforts to participate in international activities via providing non-official diplomatic assistance to less developed countries in order to improve its poor international status and foreign relationships. In the 2000 APEC, the Taiwanese representatives submitted a proposal entitled 'Transforming the Digital Divide to Digital opportunity', which was taken to be a successful programme. As far as Taiwan's current diplomatic situation is concerned, APEC is one of the few international organisations that Taiwan can officially participate in and share experiences with leaders from other countries. Additionally, because APEC particularly focuses on economic issues, Taiwan can avoid sensitive political blockage and present its technological and economic performances in front of other Asian countries. Therefore, in this sense, the meaning of the 'digital divide' is not only a national issue awaiting the policy to tackle it, but it is also a means for Taiwan to gain international presence.

8.3 Case Study: Digital Opportunity Centre (DOC)

8.3.1 Introduction to DOC

The proposal of DOC was raised in APEC in 2002. It is based on the premise that connectivity and direct access to information will lead to empowerment, capacity building and development (Bailur, 2007). The advocates committed tremendous resources to develop rural community information access centres in terms of rural information kiosks and telecentres that provide access and training to ICT users as a direct conduit to the information society (Aalami and Pal, 2005). This explains why telecentres and DOC are functioning and implemented in rural and remote areas.

In Taiwan, the project of 'bridging the digital divide' is inspired by the idea of collaboration between relevant official agencies to build a united one. The DOC project was not included in the *e-Taiwan* programme when the *e-Taiwan* programme was drafted in 2002. Only after the NICI directive community proposed the completed *Bridging the Digital Divide—a Four-Year Project* was it put under the *e-Taiwan* programme in 2004. The Computer Centre of MOE was assigned to take responsibility for developing DOC in remote areas, which project is entitled, *Plan of Creating Digital Opportunity for Remote Area*.⁷⁶ In this plan, 'DOC is an avenue which provides local people with computers and Internet access. It is hoped that by means of the provision of computers and the Internet, people living in remote villages can have the convenience of connecting to cities and furthermore, to the whole world'.⁷⁷ The target groups that this project aims particularly to help are those situated in remote areas.

8.3.2 Technology-Oriented Participants Involved in the Implementation of DOC

The goal of the *e-Taiwan* programme is connected to the ministries that participate in policy-making and implementation. The ministries involved in digital divide policy to a very large extent are concerned with technological development and economic development, and the staff has technological backgrounds. This explains why the implementation of DOC has focused on physical access. In the current section, I provide evidence of the scientific and technological backgrounds and concerns of the ministries involved in digital divide policy implementation. In section 8.3.3, I will then go on to outline how this focus on technology access has generated debates between policy-makers.

8.3.2.1 NICI

As I described previously, building Taiwan as an e-country is the main task undertaken by NICI. Under the umbrella plan of *e-Taiwan*, bridging the digital divide is one of the main tasks NICI is in charge of. Three years after the foundation of NICI, in 2004 the former committee 'The Instruction Committee for Bridging the Digital Divide' was dismissed and replaced with the 'e-Taiwan Office' under NICI.

Under the structure of NICI, the 'e-Taiwan Office' is composed of forty members, eighty percent of the staff is on secondment from other institutes and organisations,

⁷⁶ 創造偏鄉數位機會推動計畫 (*chuang tsao pien shiang shu wei chi hui tui tung chi hua*)

⁷⁷ DOC brochure published by Ministry of Education, accessible on <http://itaiwan.moe.gov.tw/>

such as National Science Council (NSC), Industrial Technology Research Institute (ITRI) and III; most of the staff are from III. The educational backgrounds of most staff are purely science and technology based,⁷⁸ as one reflects the institutes or organisations with which they are affiliated.

NSC was established in 1959 and led by a Minister and three Deputy Ministers. The Council is presently the highest government agency responsible for promoting the development of science and technology, which is one of the main tasks of NSC. Apart from this main task, NSC also contributes to the support of academic research and the development of science parks.⁷⁹

The other organisation, ITRI, founded in 1973, has the following responsibilities—1) to engage in applied research and technical services to accelerate the industrial development of Taiwan; 2) to develop key, compatible, forward-looking technologies to meet industrial needs and strengthen industrial competitiveness; 3) to disseminate research results to the industrial sector in a timely and appropriate manner, in accordance with the principles of fairness and openness; 4) to foster the technological development of small and medium-sized businesses, and cultivate industrial technological human resources for the benefit of the nation.

8.3.2.2 III

III and NICI to a very large extent can be considered as a twin mechanism, because most staff of NICI is recruited from III. The employees' backgrounds of III may have crucial influences on the implementation of digital divide policy. It also reveals one of the reasons why digital divide policy focuses on technology access. According to III's website, it shows that III is a huge body with nearly 1,500 professionals for promoting Taiwan's informatisation and half of them have science and technology backgrounds (34% with ICT, 10% with Electronic Engineering, and 6% with other Engineering), and 29% with business management (see Figure 8.4).

⁷⁸ Personal Interview, Jia-Shih Yang, on secondment from NSC.

⁷⁹ Official website of NSC, see <http://web.nsc.gov.tw/np.asp?ctNode=3419>, accessed on 06/06/ 2007.

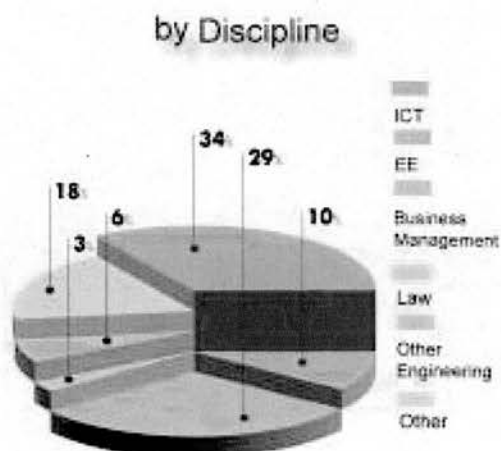


Figure 8.4 III's Employees' Educational Backgrounds by Discipline (Source: III official website, http://www.iii.org.tw/english/about_employee.asp)

8.3.2.3 Computer Centre of MOE

Through the history of the development of the Internet in Taiwan, MOE has occupied a central role in the promotion of computer- and Internet-relevant training programmes in all-level schools. The Computer Centre was established in August 1982 on the approval of the Executive Yuan. It comprises four divisions—education and training, research and development, data processing, and research services. At first, its main tasks were to promote the computerization of MOE administration, improve administrative efficiency, and raise work quality, which were the internal focus of Computer Centre of MOE.

Over time, the Centre's responsibilities have been increased and adjusted. In February 2005, the Centre was reorganised and changed into six divisions—information education, digital infrastructure, information systems, digital learning, digital resources, and information management. After many years of development in conjunction with the evolution of public information systems, the centre now serves the MOE, its affiliated agencies, and schools of all levels. From computerisation of administrative affairs, promotion of information education and web learning, to the establishment of campus, inter-school, international networks, the Centre has established an integrated information service system of comprehensive education administration and an academic R&D environment.

One of the missions of this Centre is building and developing 'Digital Opportunity Centres' (DOC) to bridge the digital divide between rural and urban regions. Other missions include narrowing the digital divide between urban and rural primary and secondary schools, enriching educational resources of primary and secondary schools in remote areas; training and running college and university e-service volunteer groups; enriching digital teaching resources of primary and secondary schools in remote areas; and training teachers from remote areas and offshore islands via e-learning.⁸⁰

8.3.3 Debates between Actors

In Chapter 2, I have discussed the term 'interpretive communities' from Yanow (2000). Yanow divided the interpretive communities into policy-makers, implementers, and users. Here, I refer to this term but make revision to analyse the policy-makers in digital divide policy in Taiwan. I categorise it into three groups: the policy-makers with top positions in the government, the policy implementers, and the academic researchers who conducted digital divide reports for the government's reference when making policy at different levels. These groups of actors have all debated the development and implementation of digital divide policy. I will present these debates with the storylines they frame.

8.3.3.1 Debates on Digital Divide Discourses

Human Rights on the Digital Divide Discourse by Top Officials and Policy-Makers

When the *e-Taiwan* programme was developed in 2002, policy discourses do not suggest any connection between the digital divide and human rights. It is after the WSIS in 2003, that 'human rights' discourse on bridging the digital divide was developed and soon spread to top governmental officials in Taiwan. Here, the influence from the international context is clear. At present, two main enthusiasts are promoting this idea. One is the deputy-director of III, Huang Guo-jun,⁸¹ and the other is the vice-President Lu Hsiu-lien. Both of their 'Human Rights' perspectives on the digital divide were

⁸⁰ <http://english.moe.gov.tw/ct.asp?xItem=579&ctNode=363>

⁸¹ This seems contradictory to the background and position of III in bridging the digital divide via promoting access to technologies, since the deputy-director of III has different opinions about digital divide policy implementation from his colleagues. However, there does exist debates inside III. The current deputy-director of III has educational backgrounds both in science and social science, and has adopted a more philosophical perspective on the way of bridging the digital divide. His background explains his quick adoption of the new idea from WSIS 2003. This observation arose during the course of data collection.

informed by the idea proposed in the 2003 WSIS, which connected Human Rights to the digital divide. With the appropriation of Human Rights discourse to the issue of the digital divide, Lu was able to connect her longstanding support for human rights with the digital divide issue. In a public speech, she stated that:

ICT should be exploited as a 'social equaliser' that enhances the social fairness and social inclusiveness towards a better society, not the other way around. It is emphasised that the 'digital divide' is not just a technological problem, but also a social one. It needs to be resolved by grass-root social movements. The goal of these joint efforts by the domestic and international communities is to achieve an inclusive e-society of full e-readiness with citizens of advanced network literacy, to realise (digital) human rights for all. (Vice-President, Lu Hsiu-lien, 2004, on the annual conference of Democratic Pacific Union)⁸²

The twentieth century is an era of digitalisation. Technology has become the prime productive force and information is the driving power for the new economy. With the coming of the knowledge-based economy, digital property has surpassed all traditional resources and accelerates the uneven development between the North and the South....Therefore, bridging the digital divide will enable all peoples, races, nationalities, gender, religions and etc. with equal opportunities to access information. This is the realisation of 'digital human rights' (Vice President, Lu Hsiu-lien, 2004, Annual Conference of Democratic Pacific Union).

With the Internet occupying people's daily lives, the government now emphasises 'information rights', which is a similar idea to the right to work, to freedom, etc. promoted in the past. When the government prioritises 'human rights', it will no longer judge things from a cost-benefit perspective, but will adopt a more open and harmonised perspective to include every citizen into the information society (Director of RDEC, Yei Jun-rong, 31/10/2005, *United Daily*).

Why do we have to pay attention to the issue of the digital divide? In terms of the political and economic conflicts taking place internationally or locally, the uneven development between the North and South, East and West, originated with the industrial revolution. While human beings' productive force was emancipated by the industrial revolution, negative results also followed. Nowadays, the information revolution has brought about similar uneven development to that of the industrial revolution'.

⁸² The manuscript of this speech was drafted by the then Deputy Director of III, Huang Guo-jun (Personal Interview, TW07, November 2005).

Additionally, from my interviews with people in NICI drafting the *e-Taiwan* programme and researchers who conducted the surveys, there exist different views concerning the definition of the digital divide as well as the implementation of digital divide policy. Officials in NICI explain:

We defined the digital divide as 'who is willing to use ICTs, but cannot. At this current stage, we are mainly concerned with "access". Under this definition, dropouts are not counted in'. (Personal Interview, TW02. March 2005)

However, this definition from NICI attracted criticism from some researchers responsible for digital divide reports. They regard the digital divide as a literacy problem, and they argue that physical access now in Taiwan is not the main cause of the digital divide. As an interviewee said,

Our survey found that sixty percent⁸³ of Taiwanese households are now connected to the Internet. 'Access to technology' is not the issue in Taiwan, but 'literacy' is. That is so-called 'Internet literacy'. (Personal Interview, TW01. March 2005)

This interviewee continued to complain about the 'misunderstanding' of the digital divide by technocratic officials, saying how his proposed project to address human and skill aspects was declined. He said,

We drafted a project, proposing to look at Internet literacy in terms of the dimensions of attitude, skill, knowledge, and identification. However, this proposal was turned down by technocratic officials. They are simply concerned about how to build more infrastructures. (Personal Interview, TW01. March 2005)

After outlining disagreement about the interpretation of the digital divide between those working in NICI, the interviewee who conducted the 2002 Digital Divide Report shared his/her observations on the digital divide in Taiwan, and proposed the concept 'information agent' for gaining a better understanding of the digital divide. S/He said,

⁸³ This interviewee conducted the 2002 Digital Divide Report. The data s/he provided indicated the household Internet penetration rate in 2001. According to the latest report published in 2006, the household Internet penetration rate has risen up to 70%.

Currently in Taiwan, the concept of the digital divide needs to be focused on 'technology for what?' rather than access anymore. That is, the relationship between the Internet and its convenience for daily life. According to our survey, some respondents reported that they did not use the Internet on their own; but they intended to ask their children to book train tickets online for them. This is the idea of an 'information agent' we developed. In this case, should the parents who do not use the Internet on their own but do benefit from the Internet be counted into the phenomenon of the digital divide? Our concern is that, if we address the digital divide from the angle of 'technology for what', then they should not be counted in. Therefore, we suggested the idea 'information agent' when making and implementing the digital divide policy. (Personal Interview, TW01. March 2005)

The concept of 'information agent' was invented in the UK only a few years ago. For example, Stewart (2002) found that one of the reasons that people do not adopt ICTs is they can rely on others to gain access to the information and services it provided. From the above extract, it is shown that the interviewee (the researcher who conducted the digital divide reports) had noticed the phenomenon in non-adoption of the Internet in Taiwan. However, when I passed on the above critique to respondents working for the government, s/he defended the government's position and gave feedback as follows,

In fact, there are still some backward areas in Taiwan, where 'the access to technology' still bothers them. For example, the aboriginals always complained to us that they had no broadband to connect to the Internet. We did try our best to help them via cooperation with private operators; however the expensive cost was unaffordable either for the aboriginals or private operators. As a matter of fact, the difficulty we are suffering from now is not merely the infrastructures, but the over complicated software. (Personal Interview, TW02. March 2005)

8.3.3.2 Debates on Implementation of DOC

The community ICT centres, either in the name of telecentres or DOC, are administered by different ministries. Because of this, debates arose between the different ministries concerning implementation and resource allocation. As described previously, debates about how to deal with the digital divide emerged from the divergent opinions on the interpretation of the digital divide and its relationship to 'development'.

Two kinds of community ICT centres are currently administrated in Taiwan. One is activated in terms of telecentres by RDEC, as I described in Chapter 7 when

introducing the digital divide policy participants; and the other is DOC. The history of DOC in Taiwan may be divided into two stages in terms of the institute/ministry in charge of the implementation. Before the official digital divide policy was made in 2003, the building and implementation of DOC was the responsibility of III. After 2003 when WSIS was held, high-ranking governmental officials were impressed by the appeal of WSIS, therefore digital divide policy was officially made by the government. Since then the divergent expectations of the way DOC should be managed have led to disagreements between ministries/agencies.

Since the digital divide policy was formalised by the Taiwanese government in 2003, the responsibility for building and maintaining the DOC has been transferred to MOE. The decision to transfer this responsibility was made because MOE provides the funding. As mentioned above, the Taiwanese government did not provide a special pool of money for implementing this policy. The result is that MOE which did have money/resources to allocate has the power to decide the direction and method of bridging the digital divide between rural and urban areas.

The DOC programme is under the supervision of NICI technically, however, the real power of implementation is held in the hands of MOE, the ministry with money to implement this policy. This tricky relationship between policy supervisor and policy practitioner may create a point of conflict between participants in this policy and consequently impacts on implementation. Additionally, although most of the staff in NICI is recruited from III, with scientific and technological backgrounds, the deputy director with a background in science and social sciences has different ideas on the implementation of digital divide policy.

The interviewee, the Deputy Director of NICI, expressed his complaints about this policy saying that,

Although the policy was made immediately after approval by the President, there was no special budget allocated for this policy. The budget was squeezed out from limited budget of the ministries that are assigned to be responsible for the policy. It made the ministries unhappy with this because the budget was extremely tight. In this case, without an added budget to implement this policy, it will have no effects at all. (Personal Interview, TW07. November 2005)

This interviewee pointed out the key difficulty in implementing this policy—where is the money going to come from. Figure 8.5 shows that the money was going straight to

the implementers, and MOE was having more budget than other ministries in bridging the digital divide. This concern further relates to another key point that which ministry has the power to decide the method of implementation. This may also partly answer the question I will ask later about why the discourses of the digital divide have diversified and advanced in parallel to those of international organisations, but yet implementation in Taiwan is still concentrated on the stage of technology access. I will return to this enquiry later.

This approach focusing on 'access to technology' has been criticised for two reasons. One is an over-emphasis on technology provision; the other is about the post-procurement issue, e.g. maintenance. Regarding the first criticism, one interview said:

The method of MOE bridging the digital divide is similar to the policy of 'extending domestic demand'.⁸⁴ MOE is just like a cash machine to benefit those involved in DOC. However, they have no idea of what the digital divide is; let alone how to bridge the digital divide. (Personal Interview, TW07. November 2005)

Regarding the second critique, another interviewee mentioned:

Maintenance is another problem which needs to be addressed. As far as the digital divide is concerned, the computer firms play an important role. Because our policy is focusing on technology access, we need technology, here the computers, to give people in remote areas access. As I know, the private computer firms are very willing to assist this policy. They donated second-hand computers or out-of-fashion computers. However, after checking all those donated computers, only half of them were found to be workable. The expenditure required for maintenance is a crucial issue. (Personal Interview, TW01. March 2005)

This second criticism reveals that the policy predominantly focuses on the basic physical access, therefore the implementers are mainly concern about the provision of basic equipment, even though the computers donated by the computer firms are not properly working.

⁸⁴ During the period of the Asia Crisis taking place in the later 1990s, the Taiwanese government adopted the idea of the economist Keynes to overcome the economic difficulties. His theory asserts that more public spending will stimulate more domestic demand. As a result, the domestic economic performance will be improved. This approach later became a joke between policymakers in Taiwan because the government asked each ministry to propose a new development plan to spend expenditure, which eventually turned out to be a money-spending competition. Nowadays, when policy-makers mention this term, they for most of the time use it in an irony way.

Ministry	Note
Ministry of Education	By 2004, the government provided subsidy for telecommunication connection for schools in remote areas. However, it was spread over and hidden in other items than 'bridging the digital divide'. From 2005 onward, an official huge amount of national expenditure was targeted to bridge the digital divide, i.e. US\$ 78 million in 2005.
Ministry of Economic Affairs	There was no national budget on bridging the digital divide by 2004. In 2005, a budget itemed 'Bridge the Digital Divide in Industries' was announced, US \$2.25 million.
Ministry of Foreign Affairs	A secret budget, which is used to subsidise less developed countries in bridging the digital divide, and hidden in the subsidy of those less developed countries. The amount is not huge.

Figure 8.5 National Expenditure on Bridging the Digital Divide by Responsible Ministries (Source: NICI, data collected from personal interview on 03/16/2005)

8.3.4 Gap between Policy Discourse, Policy Texts and Policy Implementation

In the above sub-section, the debates between policy-makers were revealed. This subsection deals with the gap between policy discourse, policy texts and policy implementation. First of all, as mentioned above, the framework of human rights appears in the public speech by high-ranking officials. However, in investigating the policy text, the human rights framework is not present yet. Here, a gap between policy discourse and policy text is emerging. As the debates discussed earlier highlight, it is found that the current debate on the digital divide still centres on over-emphasising the provision of technology to citizens.

Secondly, another gap is found between the policy texts and their implementation. According to the definition of the digital divide in this project, the digital divide is assumed to be 'a social phenomenon stemming from information technology development. It is the differences between those who have the ability of using computers and the Internet and those who do not'.⁸⁵ It further explains that these differences are socially embodied in difficulties in accessing the information, rare educational opportunities and job opportunities, low income, etc.

⁸⁵ The official proposal of *Bridging the Digital Divide between Rural and Urban Areas*, 2005: 2, conducted by MOE.

The aim of this project is to complete 168 DOCs within four years during 2005 and 2008. It emphasises the following four dimensions, which encompass a range of methods to bridge the digital divide. These range from technology access to literacy, from cultural development to economic development. According to the brochure of this project, it states the following goals:⁸⁶

- a. Infrastructures: Providing remote areas and minorities with Internet connections; promoting Internet penetration rates to bridge the digital divide.
- b. Digital Competence: Equipping residents in remote areas, minorities and aboriginals with digital literacy and competence, and improving the educational and economic environment in remote areas to provide human resources.
- c. Culture Literacy: Equipping residents in remote areas with digital technologies; helping them to develop local culture, digital culture and digital communication to transmit culture and promote sustainable development.
- d. Digital Economy: Assisting residents in remote areas to promote their ability to utilise information; promoting and developing industries with local characteristics to vitalise local economies.

However, the policy implementers implicitly indicate the digital divide as 'physical access to the Internet'. Below is the example:

[...] the unbalanced development of information technology and the Internet brings the digital divide. The divide between rural and urban areas is widening. According to the survey conducted last year, the Internet connection rate of urban areas is three times the rural areas, which indicates the marginalisation of the remote areas (*UDN News*, 2005).

Another example of the practical implementation is as follows:

We built DOC either in the computer lab of the middle schools or in the community centre. Additionally, we have some private donors to lend us a room for setting up DOC. Regarding the management of DOC, we asked every citizen to sign their names, the duration they used the computer and for what reason they used it. This is also part of the evaluation to make sure DOC is for best practice.⁸⁷ (Personal Interview, TW05, March 2005)

⁸⁶ The brochure was collected during the course of the interview.

⁸⁷ Bailur (2007) synthesizes three key issues around the design of public Internet access—sustainability, impacts and best practice.

This shows that a shifting agenda exists between policy formation and its implementation. During the policy formation, the goal includes more than technology access, however, people involved in implementation also need to address issues as confronted by users. This may provide one of the explanations as to why the implementation of digital divide policy focuses on technology access.

The other reason may be stemming from the implementers. Although NICI is responsible for digital divide policy-making, the Computer Centre of MOE is in charge of implementing this policy. The deputy-director of NICI, as an agency technically supervising MOE in implementation, in practice has no power to decide policy implementation. Here, power means the allocation of budget. NICI as a task force is responsible for policy-making. However the central government does not have a special budget for bridging the digital divide, and the budget for bridging the digital divide is allocated in an individual ministry. Therefore, without real power in controlling budget, NICI has only the administrative power to coordinate the digital divide policy-making when there are different opinions in the implementation of digital divide policy from some NICI officers. This may explain why there is gap between policy text and policy implementation.

8.4 Taiwan's Participation in ADOC Project: Promoting Taiwan's International Standing

The ADOC programme serves as an example that embodies the aforementioned discourse 'international standing of Taiwan' in section 8.2. To seize the opportunity for Taiwan's national presence and participation in international/regional occasions, the delegate of Taiwan, Lee Yuan-tseh, proposed an *APEC Digital Opportunity Centre (ADOC) Programme* at the 2003 APEC Leaders' Meeting. The proposal was approved in the Meeting, and the Taiwanese government subsequently proposed a detailed plan to activate this programme, which is called 'Telecentre Development Programme'. ADOC 'will serve as a platform for examining digital opportunities and policy positions among APEC member economies to expand digital capability and skills'.⁸⁸

Concerning the ministries in charge of the ADOC project, it implies that this digital divide policy was driven by political interests. The ADOC programme was initially drafted by the Ministry of Foreign Affairs, and then implemented with the Ministry of

⁸⁸ 'The Establishment of the APEC Digital Opportunity Centre (ADOC)', Asia-Pacific Economic Cooperation, proposed by Chinese Taipei. Senior Officials Meeting I, Santiago, Chile, 03/03/2004.

Economic Affairs. Drawing on its fruitful experience in carrying out e-government, RDEC also participated in the ADOC programme in terms of taking the responsibility for implementing the 'Telecentre Development Programme' from April 2004 onwards, which was an 18-month programme. According to the programme, the priority was to train officials in developing countries who are in charge of e-government policy. Afterwards, RDEC was assisting these well-trained officials to build telecentres in their countries. Thus far, RDEC has already assisted six countries to carry out ADOC programmes by training over 8000 information experts for these six countries—Chile, Indonesia, the Independent State of Papua New Guinea, Peru, the Philippines, and Vietnam. The budget of this programme is about US \$2.6 million per year, which is also provided by the Taiwanese government.

Why is the Taiwanese government happy to spend time and money on those developing countries? The answer is apparent for the Taiwanese people, as stated by the Vice Minister of Foreign Affairs, Yang Tzu-pao that 'the proposal of ADOC not only wins friendship from APEC member states, but also upgrades Taiwan's reputation' (website of the Ministry of Economic Affairs). He described ADOC as 'a from-zero-to-hero programme, which does not spend much money but will result in great achievement' (NSC website).⁸⁹

8.5 Conclusion

Interpretative policy research indicates that the discourse of policy problems will impact policy-making and implementation. This implies that policy-making and implementation occur in accordance with the discursive framing of policy problems. However, this approach does not acknowledge that in some cases policy actions may occur in the absence of already framed policy discourses.

The finding of this section shows although the Taiwanese government initiated an official digital divide policy in 2003, actions had already been taken to bridge the digital divide from the early 1990s. This finding further shows that although the Taiwanese government had noticed this issue, it was not until the term was popularised worldwide that their determination to address it was enforced. This shows that policy discourses always build on prior internal discourses/traditions. They necessarily involve a combination of existing/emerging, internal/external discourses. There will however

⁸⁹ <http://www.nsc.gov.tw/tech1/ct.asp?xItem=0951120005&ctNode=591&lang=C>, accessed on 02/07/2007.

have been earlier discourses in the policy communities that emphasised the goals of ICT adoption and uptake. In this respect, inclusion initiatives emerged from preceding national discourses prior to WSIS.

Moreover, the Taiwanese government made its official digital divide policy as soon as the 2003 WSIS was held. This speedy adoption from the international organisation demonstrated that the concern of the digital divide from the WSIS is corresponding to that of the Taiwanese government. In addition to this, the Taiwanese government is seizing this opportunity to strengthen its international standing.

In this chapter, I presented the understanding of the digital divide by the policy-makers from their very early stage of involvement in the digital divide policy. There is a spectrum of understanding of the digital divide amongst policy-makers. On the one hand, it is shown that there exists confusion concerning what the digital divide is. On the other, interview data also shows that some policy-makers do embrace recent alternative frameworks on bridging the digital divide, i.e. human rights, even though this perspective is still in its infant stage in spite of being hotly debated in the two-phased WSIS.

Additionally, the data shows that there is a debate between policy-makers, implementers and academics on the understanding and interpretation of the digital divide. Simply put, policy-makers and academics are concerned to map out generic goals and visions whilst policy implementers—usually at the lower level—must engage with practical user problems. Therefore, unlike academics, implementers do not pose a comprehensive map of frameworks on the digital divide, they proceed by developing specific policies and initiatives within the realm of their own institutional remit. Then they learn from other countries. There is also an issue that what counts as success may differ between policy-makers (policy that was seen as successful) and academia (theory that was seen as successful). This may be the reason why the interviewees are divided into three groups and have debates when expressing their understanding of the digital divide.

The way of understanding and interpreting the digital divide subsequently has impacts on the method of policy implementation. This has resulted in another debate between policy-makers. However this can be seen as the continuation of the debates between those doing policy implementation and those doing surveys. The debates between different participant ministries/institutes stem from regarding the digital divide as merely a technological divide or as the result of deeper social inequalities (e.g. inequality

inherited from industrial society). In Taiwan's case, the former view seems to dominate policy implementation despite the fact that the latter view, e.g. 'human rights' is promoted by the Vice-President Lu. This also relates to the ownership of resources for the implementation of digital divide policy. This finding shows that the interpretive approach does not exclude the possibility that there are discourses that are not being initiated in policy making.

In this chapter, I also mentioned the ADOC project despite the fact that it is not directly related to bridging the digital divide within Taiwan. However, the ADOC project exemplifies the impacts of discursive frameworks on policy-making and implementation. Since Taiwan is keen to improve its national presence in international organisations, ADOC is a rare opportunity, and the Taiwanese government is pleased to fund less developed countries in their attempts to bridge the digital divide. In this case, the digital divide for Taiwan is not only an issue pertinent to national development or human rights, but a political metaphor representing the possibility of gaining international recognition from other countries.

Chapter 9

Comparative Analysis

This chapter attempts to compare and analyse the development of digital divide policy in China and Taiwan as was described in the empirical chapters. Since the concept of both external and internal contexts is highlighted in this thesis, this comparison will examine the impact of each on digital divide policy-making in the case countries. It is assumed that similarities could be found in comparing the cases of China and Taiwan under the same external contexts (especially international policy discourses on the digital divide). Moreover, the similarities could also be found when considering certain challenges facing China and Taiwan, e.g. economic interests. However, when the local contextual factors are taken into consideration, e.g. respective political and economic contexts in China and Taiwan, a greater variation between these two settings may be expected.

Following this strategy of comparison, section 9.1 evidences how contexts matter in digital divide policy via provision of two figures (see Figure 9.1 and 9.2) showing the flow of initiatives from international to national levels. Regarding this international context, I provide an overview of dimensions of comparison for this chapter (see Figure 9.3), which divides the comparison into five facets—national contexts, policy formation models, framings of the digital divide, actors, and policy outcomes. Each facet will be analysed in one single section. Section 9.6 concludes this chapter.

9.1 Contexts Matter

This section analyses how contexts, at both international and national levels, matter in digital divide policy-making in China and Taiwan. It firstly documents external influences on China's and Taiwan's digital divide policy development by examining the temporal flow of initiatives and policy discourses. Secondly, it analyses (using specific examples) how China's and Taiwan's digital divide policy, was inspired by their respective indigenous contexts.

9.1.1 External Influences on China's and Taiwan's Digital Divide Policy Development

9.1.1.1 Documentation via the Temporal Flow of Initiatives

According to the findings of the empirical chapters, those international initiatives and discourses that relate to the digital divide and to digital divide policy have a direct impact on China and Taiwan's digital divide policy development. Exogenous factors provoked the Chinese and Taiwanese governments to address the issue of the digital divide and make the specific digital divide policies that this research investigates. Figure 9.1 provides an external top-down model to present this influence. As mentioned in Chapter 4, competition concerning ICTs from the US and EU has fostered an exogenous context for China and Taiwan to develop their respective national NII/Information Society initiatives. Additionally, the initiatives originating from the NII/Information Society in developed countries in the mid-1990s, not only made the Chinese government fear that they would lose again in the information era, but also gave it a chance to catch up with advanced countries.

Regarding the impacts that international initiatives have on China and Taiwan, Figure 9.2 (synthesised from Chapter 4, 6, and 8) conveys the temporal flow of initiatives. It presents the timetable of initiatives (NII/GII, IS/GIS, DD) from international level (US, EU and the international organisations) during the early 1990s to 2005 to national level (China and Taiwan), from which we can see the top-down succession of policies from global to national levels.

First of all, China and Taiwan followed the NII initiative soon after the US and EU embarked on their information infrastructure programmes in 1993/4. China began its NII in terms of 'Golden Projects' (see Chapter 1 and 4) in 1996 and Taiwan in 1994 (see Chapter 4). This shows the process of convergence, arising perhaps through mimicry of policies developed in other countries and through alignment of views (Williams, 1999: 11). In terms of the goals of these initiatives, they 'seem to be united in their resort to arguments about the competitive necessity of not being left behind in the technological competition' (Williams, 1999: 11).

After the US published its first digital divide report in 1995 and attracted the attention of international organisations, individual countries (in my research China and Taiwan) also turned their attention to the digital divide. The Chinese government coined a Chinese term equivalent to the digital divide in English in 1998, and a series of relevant policies to bridge the digital divide have been developed since then. The Taiwanese government also developed related policy to bridge the digital divide, and from 2003 onwards, official digital divide policy (i.e. policy titled with the term 'Digital Divide') has been implemented. Secondly, policy-makers practise social learning via a number of

channels—personal communications with elite experts from other countries in global/regional conferences, emailing after conferences; looking at the policy texts on other countries' websites regarding the issues at stake. Thus, international projected ideas of WSIS etc. can flow to national policy-makers.

9.1.1.2 Documenting the Flow of Discourses

Regarding the impacts that international initiatives have on China and Taiwan, the findings show that the perceived importance of ICTs for economic regeneration and competitive advantage is reflected in numerous pronouncements of politicians and policy-makers (Loader, 1998) in China and Taiwan.

The concepts of the development of NII, Information Society and Global Information Society, along with the succeeding initiatives held by international organisations on the digital divide, provides some continuity with the relationship that is believed to exist between ICTs and 'development' (a term which will be analysed in section 9.3.1.2). The logical causality resides in the idea that ICTs have the potential to aid development; therefore, failing to utilise ICTs will hinder development. The 'digital divide', in this context, needs to be bridged to facilitate development. Beneath this idea lies a deeply held faith in the ability of ICTs to change society, which echoes arguments I have characterised as 'technological determinism', as critically discussed by STS (see Chapter 2). However, this is not to suggest that the policy-makers should not prioritise development but the assumed linear relationship between technology and development needs to be considered more carefully. Taking this view of the relationship between technology and development for granted ignores the insights of STS, which has shown that technology is socially shaped.

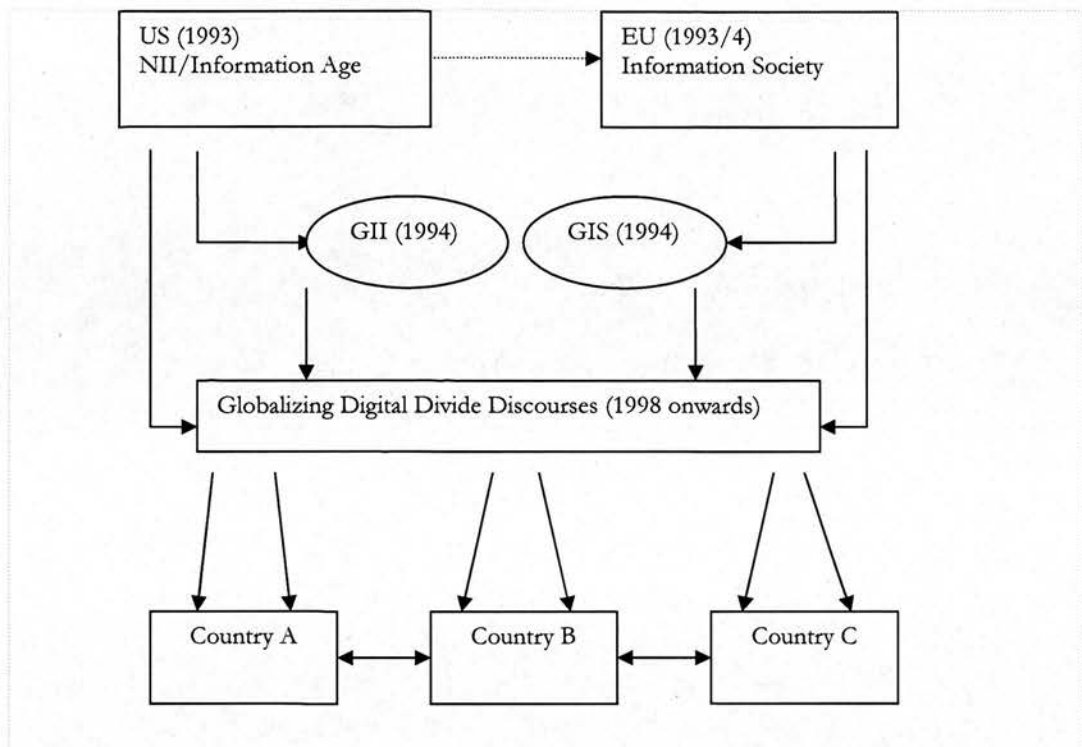


Figure 9.1 External Top-Down Policy Process (from international to national levels)

	US	EU	International	China	Taiwan
1992	<ul style="list-style-type: none"> ●Gore—NII 				
1994	<ul style="list-style-type: none"> ●Proposal for creation of a Global Information Infrastructure (GII) to the world stage in ITU 	<ul style="list-style-type: none"> ●The establishment of a High Level Group of Experts on the Global Information Society ●Bangemann took the Information Society to the global stage when it persuaded the G7 group of countries at its summit to set up a Global Information Society (GIS) 			<ul style="list-style-type: none"> ●NII Steering Group was launched
1995	<ul style="list-style-type: none"> ●Five DD reports (1995-2002) 		<ul style="list-style-type: none"> ●UNESCO/ITU started a process which culminated with the creation of the 'Africa Information Society Initiative: An Action Framework to Build Africa's Information and Communication Infrastructure' in 1996 ●GIS Project was operationalised through the G7 ministerial conference on the GIS ●G7 sponsored a conference on the theme of 'Information Society and Development' which took place in South Africa, concluding that there is a gap between industrialised and developing countries Africa was the first continent to undertake such a programme; however the concept of the digital divide was not yet established. 		

1996	<ul style="list-style-type: none"> • The original use of the DD referred to fears about differential access to ICTs in different schools in the US. The concept of the DD started to be adopted and spread elsewhere. 			<ul style="list-style-type: none"> • China's NII: Golden Projects 	
1998			<ul style="list-style-type: none"> • G8 held a summit in Okinawa: 'Okinawa Charter on Global Information Society' 	<ul style="list-style-type: none"> • A Chinese term equivalent to the digital divide was officially coined by the Chinese government 	
2000				<ul style="list-style-type: none"> • A series of digital divide related projects took place <ul style="list-style-type: none"> —Cun Cun Tong (1998 onwards) —E-School (2000 onwards) —Go West (2000 onwards) —The Construction of Socialist New Villages (2006 onwards) 	<ul style="list-style-type: none"> • Executive Yuan launched a steering group to bridge the digital divide
2001			<ul style="list-style-type: none"> • The Clinton-Gore initiative was taken to the global level. • World Bank's online magazine <i>Development Outreach</i> report was titled 'From Digital Divide to Digital Opportunity: Business Leaders Report from Davos'. Clinton and Gates were present. 		
2002				<ul style="list-style-type: none"> • World Summit on Information Society (WSIS) Phase I 	<ul style="list-style-type: none"> • Digital Divide Policy was included into <i>e-Taiwan</i> programme
2003				<ul style="list-style-type: none"> • WSIS Phase II 	
2005					

Figure 9.2 Flow of Initiatives from the International to National Level

		China	Taiwan
National Context (section 9.1.2)	Similarities	Eco-Geographically, both China and Taiwan face the issue of uneven regional development. For China, this is reflected in the western/eastern disparity; for Taiwan, it is reflected in the unbalanced development between urban and remote areas. Additionally, inspired by the ICTs-driven international competition in Japan, US, and EU, both China and Taiwan take ICTs development as the driving force for economic growth. Therefore, the digital divide is regarded as the barrier to national development.	
	Differences	For political reasons, the Taiwanese government is taking ADOC as an opportunity to promote its international standing.	
Policy Formation Model (section 9.2)	Similarities	Looking at the international-local interactions, China and Taiwan are influenced by the global trend of ICT development and concerns about the issue of the digital divide, which were initiated from the US, EU, and international organisations. In turn, China and Taiwan are using the digital divide policy to display their capacities or international standing in the world. This is a top-down (internationally to nationally) policy model.	
	Differences	Looking at the domestic policy model, China took a centralised approach to digital divide policy-making. The Chinese government dominated the naming, framing, policy formation and implementation of the digital divide policy. MII took a centralised approach to ask six listed telecommunication operators to bear the responsibilities of universal service, which is called <i>fen pian bao gan</i> (分片包幹).	In contrast to China, Taiwan took a less centralised approach to digital divide policy making. A non-governmental institute III was taking initiative in the perception of the digital divide and making relevant policy to bridge the divide prior to the action taken by the government. III drafted <i>e-Taiwan</i> programme in 2000, and this was included in the official policy in 2003.
Framing of the Digital	Similarities	Both China and Taiwan are adopting a technology-driven approach to the digital divide policy, and treating the relationship between ICTs and development in a linear and optimistic manner.	

Divide (section 9.3)	Differences	China predominantly focuses on national development, which is presented in the framing of the digital divide in terms of economic development and national competitiveness.	There are a wide range of framings on the digital divide, e.g. human rights, social development, national development, economic development.
Actors (section 9.4)	Similarities	Both in China and Taiwan, the technocratic staff are in charge of policy implementation.	
	Differences	There are two distinctive groups—top policy-makers who are in charge of policy-making and implementers. Researchers conducted reports are affiliated with MII. Debates took place between MII and MOF.	There are three distinctive groups—top policy-makers; implementers, and researchers who conducted digital divide surveys and reports. Debates took place between these three groups in terms of the interpretations of the digital divide and implementation of digital divide policy.
Policy Outcome (section 9.5)	Similarities	Both China and Taiwan focus on the infrastructures and economic development. Regional disparity is the common focus in both China's and Taiwan's policy implementation.	
	Differences	Due to the status of development, China is now focusing on telephony in western/rural areas; and will be extending this to the Internet.	Taiwan is focusing on the Internet.

Figure 9.3 Comparison of Digital Divide Policy-Making in China and Taiwan (Source: Compiled by the author)

9.1.2 Digital Divide Policy Inspired within Indigenous Contexts

In cross-national comparisons, nationally contextual variation always forms a large part of the explanation (Tilly and Goodin, 2006). In this section, with the combination of empirical and theoretical concerns already provided in the earlier chapters, brief accounts are provided of national contexts in China and in Taiwan based on Chapter 5-8 in order to offer a map (see Figure 9.3) for comparison in the following sections.

9.1.2.1 China's National Context

As far as the indigenous context is concerned, political and economic concerns and China's socialist tradition provides an explanation for the way in which digital divide policy has developed. Indigenous pressures stem from a historical context in which China has lagged behind advanced countries, and the geographically and politically produced regional disparity between western and eastern/coastal areas, which has exacerbated China's unbalanced economic development between regions (see Chapter 5).

It is within these national and international contexts that the Chinese government has devoted attention to the development of informatisation software since the Sixth Five-Year Plan (1981-1985) and telecommunications service since the Ninth Five-Year Plan (1996-2000) onwards. The building of telecommunications infrastructures began much earlier under the Sixth Five-Year Plan (1981-1985) (Shen, 1999). The focus on the development of ICTs also arose because of three relevant beliefs. First of all, with the discourse 'ICT for development', 'officials recognise that telecommunications facilitate economic growth and are central to the modernisation ambitions of the Chinese government' (Yu *et al.*, 2004: 721). Secondly, since 'the digital divide is a barrier to development' (see Chapter 6), removing this barrier via using telecommunications will facilitate development. Thirdly, bridging the domestic digital divide can prevent China's lagging behind advanced countries and bridge its divide with other countries, i.e. bringing the international divide via reducing the domestic divide. Therefore, the Chinese government is geared towards bridging the divide between rural and urban areas. In tackling this issue, the Chinese government reshuffled the telecommunication sectors, which took place earlier (in the first half of the 1990s) than the first reorganisations of governmental sectors in 1998.

9.1.2.2 Taiwan's Context

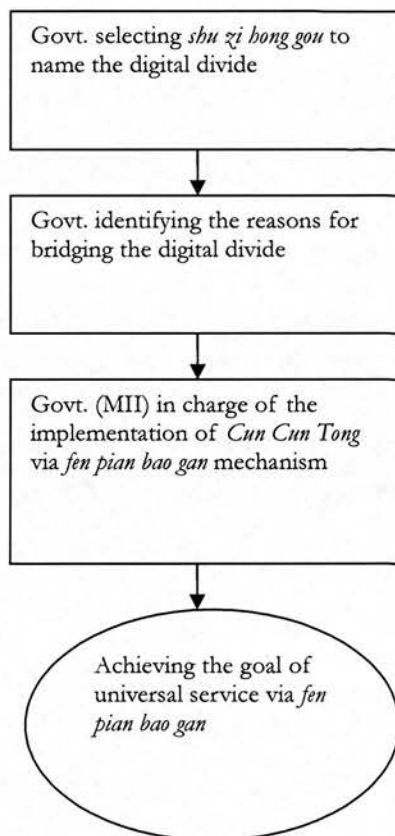
Taiwan was equally under-developed in 1948 but followed a very different economic and political trajectory from China. Though part of an overlapping prior history, Taiwan is sharply different from China in terms of the size of its territory and population, economic and social development, foreign relationships, etc. Though economic development in Taiwan occurred earlier than in China, Taiwan faces its own unique difficulties in dealing with the digital divide; the issue of the digital divide exists in every country, no matter how developed it is. The disparity of development between different regions still poses a challenge to the Taiwanese government in the information era.

However, the motivation of the Taiwanese government in making digital divide policy not only lies in the perceived phenomenon of the digital divide, but also stems from other concerns. First of all, concern about economic growth was foremost when the government made the *e-Taiwan* programme, which is part of its digital divide policy. The power shift in 2000 also contributed to the making of digital divide policy, giving the new ruling party DPP a chance to lead Taiwan in overcoming the bottleneck of economic transition from an industrialised economy to an informatisation economy. This new government is facing economic pressure that has resulted from the growing number of Taiwanese manufacturers relocating to China. Thirdly, the political structure of the international stage provides Taiwan with an incentive to take action in international organisations. China has prevented Taiwan from entering some international organisations (e.g. the UN), so the Taiwanese government is keen to find shelter where it can, via its highly developed technology (its listing as one of the Asian Four Little Tigers provides evidence for this) and help less developed countries to eliminate poverty and tackle the digital divide. The project of ADOC described in chapter 6 exemplifies this goal.

9.2 Policy Formation Model

Figure 9.4 below seeks to summarise China and Taiwan's digital divide policy formation models, although it may not present a complete picture due to limited number/range of interviewees. Based on the available data, the figure shows that China's digital divide policy development is a centralised model because, as mentioned in Chapter 6, from naming to policy implementation, the government has played the crucial role. The Taiwanese model is less centralized because the government only just created a digital divide policy in 2003, following an action taken by a non-government organization (NGO) in the 1990s.

Centralised DD Policy Model: China



Less-Centralised DD Policy Model: Taiwan

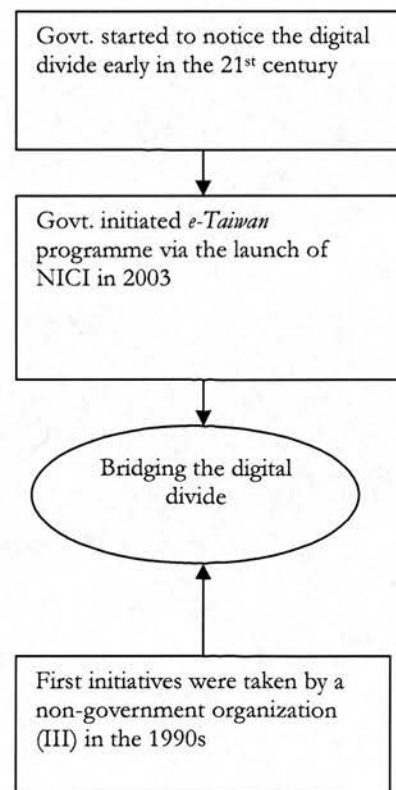


Figure 9.4 Comparison of China's and Taiwan's Internal Digital Divide Policy-Making Models

However, if the international context is also included in the comparison of China and Taiwan, they present a more similar policy model in digital divide policy making. They are both influenced by exterior contexts, e.g. NII/Information Society and thereafter the digital divide framings from the US, EU, and international organisations, which shows that they are influenced in a top-down manner by more developed countries.

9.3 Framing the Policy Problem

This section deals with how the policy problem is framed at the national level. Section 9.3.1 compares the framing process. Section 9.3.2 analyses the dominant perspective on the digital divide—technology-driven perspective.

9.3.1 Framing Process—Domestication

9.3.1.1 Differences in the Process of Naming the ‘Digital Divide’

Chapter 6 showed that China has taken a centralised approach to naming the ‘digital divide’. Chapter 6 also provided a detailed description of the process of defining the digital divide, including how a Chinese term was chosen to indicate the phenomenon of the divide, and who participated in the process. Most importantly, the process displayed the Chinese government’s determination to tackle the digital divide. The Chinese government is ideologically committed to equality; however it is currently also extremely concerned with economic growth. The process also elucidates how a definition of a policy problem in an authoritarian country occurs via a centralised process.

In contrast, the case of Taiwan represents a less centralised process in defining the digital divide. As presented in Chapter 8, the process of defining the digital divide and policy-making in Taiwan has been somewhat different from that in China. The first difference comes from the acquisition of the term in Chinese. As mentioned above, the Chinese government held a meeting to choose a Chinese term for the divide, and adopted a centralised path in making policy. In contrast, the phenomenon of the digital divide in Taiwan was first perceived by a non-government organisation, III, and the Taiwanese government did not provide an official Chinese term in making the policy. On the contrary, the definition was fostered and revised via III and research reports by the civil society, i.e. academic researchers.

9.3.1.2 First Level of Domestication: Linguistic Appropriation—Choosing Different Chinese Terms for the Digital Divide

The term ‘digital divide’, for both China and Taiwan, is imported from outside their countries. In dealing with a foreign term and a novel concept for policy-makers, China and Taiwan focus on different aspects. In China, policy-makers spent considerable time in deciding on a Chinese term to name the digital divide (see Chapter 6), but there was very little debate within the policy-makers about the meaning of the term. In contrast, Taiwan did not make efforts to find a unified Chinese term for this issue, but followed what III used to name the digital divide in terms of *shu wei luo cha* in Chinese. However, in Taiwan, a heated debate has developed between actors concerning the meanings of the digital divide (for a detailed analysis, see section 9.3.4).

In China, the government selected the Chinese term ‘*shu zi hong gou*’ from several others to indicate this disparity embedded in the Chinese context. The Chinese term ‘*hong gou*’ is used as a metaphor as discussed in Chapter 6, to indicate an unbridgeable gap between a divided area. The Chinese government adopted this translation to symbolise the current phenomenon of the national digital divide in China. In Taiwan, ‘*shu wei luo cha*’ is used as the translation of the digital divide to indicate a ‘difference’ between groups in adoption of the ICTs. This difference is not unbridgeable, but a figurative difference between groups. These two Chinese terms reveal how huge the divide is in policy-makers’ minds. The one used in China indicates that this is a very big gap that may be very difficult to bridge; the one used in Taiwan reveals the existence of a difference between groups, but does not indicate that the gap is huge or that it may not easily be bridged.

However, the consideration (in China) and debates (in Taiwan) on the naming and definition of the digital divide have centred on the ‘divide’ without questioning the term ‘digital’. This implies that they both take for granted that the ‘digital divide is a technical issue’ (Gunkel, 2003; Warschauer, 2002, 2003a, 2003b; van Dijk, 2005). Furthermore, ‘people framing the digital divide as a technological problem suggests that access to the technology concerned is able to fix existing social problems, among them problems of social inequality, democracy, freedom, social relationships, and community building (van Dijk, 2005: 5).

9.3.1.3 Second Level of Domestication: Fit it to National Policy Discourses

Expectations of ICTs in China and Taiwan

a. National Competitiveness and Leapfrogging

Concern within advanced countries has tended to be directed towards the perceived need to avoid falling behind the countries whose economic development is driven by the development of ICTs (Loader, 1998). Less developed countries have the same worries. Therefore, politicians often use the rhetoric of global economic competition to legitimatise, either privately or publicly, the state's intervention in the issue of the digital divide (Servon, 2002). In China's and Taiwan's cases, this rhetorical strategy is also employed in terms of 'national competitiveness' according to their respective national contexts.

As mentioned in the previous section on contexts, the Chinese government is keen to catch up with and leapfrog advanced countries in the era of the information revolution by grasping the opportunities created by ICTs. Thus, calls not to lose again in the third industrial revolution are clear in the speeches of national leaders (see Chapter 6) and in the interviews that I conducted with policy-makers. For Taiwan, the idea of national competition via the development of ICTs is presented in terms of Taiwan's becoming the Asia-Pacific Digital Centre. Although China and Taiwan seem to have different goals in bridging the digital divide, they do have a similar hope, which is presenting and showing their advanced ICTs development to the outside world.

In Chapter 4, I discussed how the meaning of 'ICT for development' has changed over time in global organizations from emphasising economic development (nation-centred) to human development (people-centred). However, in this research, it is found that both China and Taiwan prioritise economic development in their goal of bridging the digital divide. Particularly in China, the digital divide is regarded as a barrier to economic development, and ICTs are taken as a tool to realise leapfrogging development, and to help China win the race in the third industrialisation.

b. Social Inclusion/ Human Rights

The framings of social inclusion/human rights were not mentioned by the Chinese interviewees during my fieldwork. In contrast, as shown in the empirical findings from

the Taiwanese case in Chapter 8, the framings by the interviewees of the digital divide in Taiwan included social inclusion and human rights. Additionally, 'social inclusion' is recurrently indicated in the policy texts, interviews and digital divide reports when ICTs are mentioned in relation to creating an information society in Taiwan. An emerging framework of 'human rights', which gained popularity internationally from the two-phased WSIS summits in 2003 and 2005, has attracted attention from high-ranking officials, including the Vice President Lu Hsiu-lien. As mentioned in Chapter 8, she gave a speech at an international occasion arguing that digital rights should be combined with the concept of human rights—an issue she has promoted for many years. However, the novel conceptualisation of the digital divide as an offence to human rights is still in its infant stages. Two of my interviewees, who are doing policy implementation instead of policy-making, also doubted whether this concern could be enforced in law or implemented in policy. This is related to the discussion of the gap between policy discourses, policy formation and policy implementation, which will be discussed in a later section.

9.3.1.4 Third Level of Domestication: Fit to the National Settings

Digital Divide as a Metaphor

As Fischer observes, macro discourses constitute the 'residua' of a society's or a group's collective memory (Fischer, 2003: 75). The digital divide serves this end 'primarily in the form of stories that can be taken as the engrams basic to our modes of thinking and action' (Fischer, 2003: 75). The digital divide in my two case countries has perhaps served as a metaphor for national development, although the definition of national development differs in relation to their stages of development. Since the divide can be measured using many mechanisms, it can be considered to some extent as an 'artificial' social concept. However, this is not to deny the reality of the divide. Rather, what I am arguing is that the digital divide as a metaphor can be interpreted in diverse ways depending on the context in which it is considered.

The digital divide as a metaphor in China and in Taiwan has different implications. In China, the digital divide is described as a barrier to national development, preventing China from winning the race in 'the third industrialisation'. Additionally, the digital divide is related to regional inequality, alongside other existing social inequalities. Accordingly, the phenomenon of the digital divide in China plays a crucial role not only as a stumbling block to China's leapfrogging in the global economy, but also as a

hindrance to building an equal society between regions. Furthermore, when the digital divide becomes a policy issue, the political interest in the digital divide can be seen as an attempt to divert attention from long existing, but unsettled social inequalities.

The framing of the digital divide also refers to the existing discourses on the relationship between science/technology and society, which is the 'contextuality' mentioned in Chapter 2. In the case of China, Deng Xiaoping's two slogans 'science and technology are productive forces' and 'Science and technology are the first productive forces' manifest the close relationship invoked between science/technology and development and the expectation of China's leapfrogging with technological development. The spirit of these two slogans further influences the digital divide discourse which emphasises the vital role which ICTs play in social change and calls for the digital divide to be bridged in order to fully utilise ICTs to catch up with developed countries.

The digital divide is also mainly regarded as a regional policy issue in Taiwan. However, for Taiwan, the digital divide as a metaphor serves a different function. As a successful player in a global economy, the phenomenon of the digital divide in Taiwan is relatively much less severe than that in China. However, Taiwan has an alternative way of utilising this metaphor. The political pressures facing Taiwan, especially the ruling party DPP, are twofold. One is to create/build a harmonised society within Taiwan, to balance development between rural and urban regions. The other is to utilise the opportunity to help other less developed countries in bridging the digital divide as part of a broader international relations strategy, aimed at overcoming Taiwan's weak international standing. These pressures are reflected in the way in which the digital divide has been framed in Taiwan.

9.3.2 Dominant Perspective—A Technology-Driven Perspective

These two settings have something in common in the way that they have framed the digital divide, and these similarities are coherent with the international context, unfolding within entrenched discourses of a technology-driven perspective. Policy-makers in both countries over-emphasise the optimistic side of ICTs, and take the pessimistic side to be non-existent. This echoes what Jasanoff claims about discussions of technology and development, 'although both celebratory and critical accounts of science and technology claim considerable empirical ballast, it is the former that have exercised disproportionate influence on thinking about development' (Jasanoff,

2002: 259).

9.3.2.1 A Technology-Driven Perspective

The way in which the digital divide is interpreted in the two case countries represents a technology-driven perspective, which explicitly regards technology as driver of social change. It cannot be denied that technologies do have effects. However, the problem is that in these two countries, physical access is taken as a symbol of development. In China, the technology-driven rhetoric is presented in storylines such as 'leapfrogging', 'national competitiveness', and 'catch-up via Industrialisation supported by Informatisation' (see Chapter 6). These all suggest that ICTs will play the role of helping China to win the 'Third Industrialisation' (Hu, 2002). However, for example, the 'leapfrogging' discourse ignores the fact that technological change and social development are mutually shaped, i.e. co-produced; and that development, either technological or social, is continuous, not leapfrogged (Jasanoff, 2002). The technology-driven perspective is also already evident in Taiwan's *e-Taiwan* programme. Moreover, both in China and Taiwan, 'informatisation' is taken as the next stage after industrialisation, i.e. China emphasises the phase 'The Third Industrialisation' to develop its 'informatisation'; Taiwan emphasises the importance of informatisation to its international standing. Mueller and Tan regard this perspective in their analysis as 'technocratic vision' (Mueller and Tan, 1997: 14). In the era of industrialisation, heavy and light industries are driving economic development. In the informatisation era, 'a new fixation on information takes the place of the older fixation on industrialisation' (Mueller and Tan, 1997: 14), with the belief that 'economies can modernise and develop by implementing advanced information technology—that is, the technology itself causes development and growth' (Mueller and Tan, 1997: 14).

9.3.2.2 A Digitally Optimistic Perspective

As Litan and Niskanen state in regard to digitally optimistic perspective, it is 'a key theme of the optimistic scenario is that speeding up the diffusion of digital technology—is to be valued not for its own sake but for the benefits it can bring to all users, including nondigital businesses and consumers' (Litan and Niskanen, 1998: 5). 'It presumes that many of the potential roadblocks to electronic commerce and other digital developments will be overcome, but at the same time it is not euphoric because we do not presume that the projected changes will occur overnight' (Litan and Niskanen, 1998: 5).

The technologies are not value-neutral but will have both beneficial and disadvantageous consequences (Loader, 1998). However, policymakers tend to emphasise the beneficial side of the technologies and promote the usage of technologies. For example, 'a key scenario is that speeding up the diffusion of digital technologies—notably the use of computers and the Internet—is to be valued not for its own sake but for the benefits it can bring to all users, including non-digital businesses and consumers' (Litan and Niskanen, 1998: 5).

9.3.2.3 'Digital Divide' Implies Necessity and Eagerness for Adoption of Digital Technologies

The efforts made in these two settings to bridge the digital divide manifest the notion that digital technologies are necessities for human society. The policy rhetoric and first- and second-hand interviews highlight the importance of telecommunications technologies that will bring not only a novel technological device to daily lives but, more importantly, will produce information flowing on the Internet and the knowledge produced by access to and use of the Internet. To some extent, this means of understanding and framing the issue of the digital divide in China and Taiwan can be said to represent the implicit conceptualisation of how ICTs (and the Internet in particular), can contribute to 'development'. Both China and Taiwan frame the digital divide as a barrier to 'development', even though the definition of this term 'development' varies in the two settings with their different concerns. Without a doubt, the new ICTs do bring improvements to people's lives. However, it is also vital to put the implicit negative side into perspective. For instance, whether online access leads to other forms of access being withdrawn, e.g. will phone boxes disappear with the uptake of mobile phones? Additionally, arguments about the necessity/desirability of ICTs turn non-adopters or dropouts into a problem, which obscures the complexity of why some people do not use the Internet. This overly optimistic perspective also follows the logic of the technology-driven perspective in supposing that the Internet will automatically drive social development, and ignores the fact that technology and society are mutually shaped.

9.4 Actors

This section compares the actors of digital divide policy-making in China and Taiwan. I am interested to analyse which actors are involved, directly and indirectly, their

background and orientations and how they are configured together. Firstly, it analyses the division of labour between actors. Secondly, it compares the backgrounds of actors. Finally, it raises an observation that both in China and Taiwan the public is missing in digital divide policy-making.

9.4.1 Division of Labour between Actors

I have identified three categories of participants who play different roles in digital divide policy-making in a broad sense. One of them is placed in charge of policy-making in a narrow sense; that is they are drafting policy but not actually involved in policy implementation. The second group encompasses those ministries/institutes that are taking responsibility for policy implementation. The third group, i.e. the group of researchers, including researchers from public policy bodies and from academia, takes a peripheral position in the policy-making process in a broader sense, and is in charge of conducting surveys on the digital divide in order to provide references for policy-makers.

As far as the first group is concerned, in China, the issue of the digital divide has received attention from the committee who are making Five-Year Plans but no task force has been assigned to tackle the digital divide. In Taiwan, the government has established a task force to be in charge of drafting digital divide policy. In pursuing national development and economic growth, these two governments are taking the digital divide as a crucial policy problem to tackle. Their concerns are represented by the broad range of ministries that are included in policy implementation.

The second group, in both China and Taiwan, holds the real power to implement digital divide policy. Here, 'power' means the resources and finances to implement the policy. The authority is shifted from the high-ranking policy-makers to lower-level implementers. The reason resides in the available budget. In China, MII is playing this significant role; while in Taiwan, MOE now plays this role in bridging the digital divide in remote areas. These groups are officially designated as being the lead authorities. The institutions placed in charge of implementing digital divide policy also reflect the stage of ICT penetration in each country. In the findings of this comparative study, we can see a trajectory in digital divide policy-making. For a country that lacks a high penetration rate nationwide, the focus of policy-making will be on the provision of technology, and the institution to be placed in charged of digital divide policy will be more technology-driven. As soon as ICT penetration is not the main concern, the focus

of policy-making will transfer to the acquisition of skills, or literacy, and the institution that is in placed in charge of digital divide policy will be less technology-driven. As China is at an earlier stage of ICT development than Taiwan, MII (China) is particularly focusing on the provision of technology at this moment, and MOE (Taiwan) is extending its concerns to more social aspects of provision, although its policies could be critiqued for continuing to focus on technological access.

In traditional policy research, the definition of policy-makers generally refers to the first of the above categories, and is sometimes extended to the second one. However, in this thesis, I found that the role of researchers who conduct surveys on the digital divide cannot be ignored since they play a crucial role in setting up the variables, which policy-makers use in developing policy. It is clear from the first official digital divide surveys from the US that variables are important in digital divide policy because they indicate who may be the target citizens that the policy should be aimed at. It is shown in this thesis that in Taiwan, this group is mainly composed of academic or professional researchers, however in China MII, a government institution CNNIC, takes this responsibility.

9.4.2 Background of Actors—Technocratic / Utilitarianism

In this section, ‘actors’ is used in the narrow sense to refer to those involved in policy-making and policy implementation. Drawing upon the analytical framework in Chapter 2, I discuss how the dominant framing of the digital divide helped support substantially different legislative and administrative arrangements in each national context (Jasanoff, 2005). Fischer also states, ‘problems and the policies designed to deal with social problems are important determinants of which actors will have the authority and power to deal with the issues they raise’ (Fischer, 2003: 62). As Baumgartner and Jones (1983, cited in Fischer, 2003: 62) point out, when a policy is presented as dealing with a technical problem, professional experts will tend to dominate the decision-making process. This also happens in China and in Taiwan in dealing with digital divide policy. According to the findings in Chapter 6 and 8, the institutions that are placed in charge of digital divide policy present a technology-centred approach. This bias towards physical access to hardware may be rooted in the educational background of the personnel who are involved in policy-making and implementation, as well as from the task of the institute. For example, in China, it is clearly stated on MII’s official website that it is responsible for the building and development of ICTs infrastructure. The interviewees that are responsible for the policy implementation and digital divide

reports also have technology-centred educational backgrounds, one holding a PhD degree in engineering and the other holding a masters degree in computer science (Personal Interviews, CH 03. April 2005; CH13, September 2006). In Taiwan, as evidenced in Chapter 7, around 60% of III, the institute responsible for the digital divide policy, have technology-centred educational backgrounds. Therefore, it is not surprising that digital divide policy both in China and Taiwan focuses on the infrastructures. This tendency can be also explained via what Shen and Williams (2005) criticise as 'utilitarianism' in relation to China and Taiwan and perhaps also other East Asian States, which refers to a 'narrow focus adopted of technical specialism in science and engineering at the expense of social, policy and managerial expertise, often associated with an elitist approach' (Shen and Williams, 2005: 198).

9.4.3 The Public Is Missing

Existing literature reviewed in Chapter 2 includes users/the public amongst the interpretive communities of policies (Yanow, 2000). However, my research found that this group is missing in the digital divide policy-making process in both China and Taiwan. This may be linked to the aforementioned 'technocratic/utilitarian' approach. Although digital divide policy implementation targets the users/the public, in my research the people living in the rural areas in China and in Taiwan, (i.e. the target 'public') are not audible in the policy-making process. Instead people are just given the technical equipment and programmes which the government or sponsors have allocated according to their own imagination of what these 'have-nots' need. This may lead to undesirable outcomes that 'exclude a large part of the population from educational, job, health, and other benefits of the information society' (Shen and Williams, 2005: 212).

For China, the reasons that the public is missing from digital divide policy-making may be explained as follows. First of all, the issue of the digital divide at this stage in China has much to do with the unbalanced development of infrastructures between regions, which means that technical issues have been seen as the first priority for the rural regions in China. With this concern, bridging the digital divide is easily regarded as the responsibility of technical experts. This reason can be further traced back to China's attitude toward technology for development. Since the economic reforms in 1978, science and technology have been regarded as a driving force for economic development that has led China toward modernisation. Therefore for the Chinese government, technological development is largely conceived as a strategic issue linked to economic development, rather than to broader social programmes or goals. Within this

concern, the position of technological specialists in the field of science and technology is highly respected and means that China tends toward elitism/meritocracy (Shen & Williams, 2005: 209). Secondly, as one of my interviewees in China complained, 'for the people living in rural regions, maintaining three meals for every day is their only concern. For them, ICTs become a luxury beyond their imagination' (Personal Interview, CH01. April 2005).

For Taiwan, the explanations provided by policy-makers as to why the public is absent in digital divide policy-making overlap with the case of China. I was told that for 'people living in rural regions, earning a daily living is the first priority and therefore, lay persons who are on the receiving end of digital divide policy may not be interested in and may exclude themselves from this policy' (Personal Interview, TW02. March 2005). Additionally, a capitalist approach in developing ICTs and bridging the digital divide (Hung, 2004) may account for the missing public in Taiwan's digital divide policy. This can be evidenced by looking at that who is invited to the Civil Advisory Committee of NICI. According to the identities of members in this Advisory Committee, I find that only those holding positions of CEOs, chairman, or president are in the list of the committee, and lay persons and the public are missing.

9.5 Policy Outcome

This section compares the outcomes of digital divide policy in China and in Taiwan. Reflecting on the national contexts, the findings show that China and Taiwan at present have different foci of policy implementation. Secondly, it is found that both countries focus on bridging the regional divide.

9.5.1 Different Foci of Policy Implementation in China and in Taiwan

That China and Taiwan have different foci of policy implementation mirrors their respective developmental contexts of ICTs. In 2006, China's population was 13.2 billion and its per capita GDP was US \$7,800 (National Bureau of Statistics, 2007), which compared to Taiwan's population of 23 million and per capita GDP of US \$16,471 (DGBAS, 2007). China has a large developing economy, while Taiwan has a small and high-income economy. These differences certainly influence the objects of digital divide policy in these two settings.

In bridging the digital divide, China's development seems to be a successful story and

perhaps a model for other developing countries (Harwit, 2004). According to the latest statistics, it has more than 367 million fixed line connections, and about 137 million Internet users.⁹⁰ Nationally, there are some 27.79 fixed telephone lines per 100 inhabitants, 34.83 mobile cellular subscribers per 100 inhabitants, up from 0.2 phones per 100 in 1980 (Harwit, 2004).

However, within China, the regional disparity in telephone access has caused a split between haves and have-nots. For example, in 2006, the top five provinces of fixed telephone users were located in the eastern region, such as Guangdong, Jiangsu, and Zhejiang. Teledensity rates range from more than 70 phones per 100 citizens in cosmopolitan cities like Shenzhen, to tens of thousands of rural villages without a single telephone (Harwit, 2004). As a result, the Chinese government has begun to pay more attention to *Cun Cun Tong Dianhua*, the policy that aimed to connect all administrative villages to the landline network, and eventually achieved this policy goal by the end of 2006.

In contrast to China, Taiwan is a small island with a high density population, and the current policy goal is to get all citizens to connect to the Internet, especially those living in rural areas, as Taiwan's household telephone penetration rate is 97.6% (DGBAS, 2006).

9.5.2 Both Focusing on the Regional Divide

This research finds that both China's and Taiwan's digital divide policy focuses on bridging regional divides, although other dimensions of the divide have also been mentioned in the digital divide reports. This may be explained, in the first place, by their national contexts. Concerning the national contexts discussed in Chapter 5 and 7, geographical disparity is obvious both in China and in Taiwan. Secondly, it is assumed by policy-makers that there is a close relationship between the adoption of telecommunications and national economic growth. Therefore, if regional economic disparities are reduced as the result of bridging the regional digital divide, overall the national growth rate will be raised, because there is a greater economic development in all regions.

⁹⁰ MII official website.

http://gtob.scdnews.com.cn/www.mii.gov.cn/art/2007/02/09/art_169_28756.html. Access on 01/10/2007.

9.6 Conclusion

In this chapter, I have compared the national contexts, the framing of the digital divide, and the participant ministries in charge of policy-making and implementation in China and Taiwan. I located these elements in a broader international context because the NII initiatives from the US and the 'information society' initiative from the EU that emerged in its wake have spread to other advanced countries and developing countries, and have played an important role in the subsequent framing of the digital divide and digital divide policy-making and implementation.

It is found that the framing of NII and the 'information society' lead to the digital divide being defined as a particular kind of problem, almost exclusively framed in terms of its implications for national competitiveness and economic growth. This discourse relies upon ideas such as technology-driven perspective, digital optimism, necessity of ICTs, and so forth. However, when 'national context' is also included in the analysis, it can be seen that China and Taiwan have defined these 'macro discourses' slightly differently. This reflects on the one hand, the impacts of international context and a broader set of ideas available to actors in both national settings; and on other hand, the influences of distinct national contexts. The comparison also shows that not only is the interpretation of the digital divide affected by national contexts, but that the participant ministries and policy outcomes are as well. Furthermore, the comparison shows that the discourses of the digital divide in both settings are related to determinist accounts; and both emphasise infrastructures, particularly in the initial stages.

The effects of contexts on the framing of the digital divide and digital divide policy can also be shown in another way. We can present the impacts of contexts by showing why some framings appearing in a common international context are found in one setting but not in another. For example, the framing of the digital divide as a human rights issue appears in Taiwan but not in China. This is because in China, a discourse of 'human rights' is absent from existing policy discourses, e.g. it is not a framing which is familiar in Chinese culture.

With regard to ministries in charge of digital divide policy, we can see similarities between China and Taiwan, both of which recruit staff with backgrounds in science and technology to be responsible for digital divide policy. This to some extent resonates with the macro framing of the digital divide at an international level. The obvious difference between China and Taiwan in terms of the participants is that China places digital divide

policy within a broader national development policy and has no independent steering committee directing digital divide policy. In contrast, Taiwan founded an independent committee to deal with digital divide policy in 2003.

Policy outcomes also relate to national contexts, and are influenced by the framing of the digital divide. For China, uneven provision of infrastructures stands as the policy priority, thus *Cun Cun Tong Dianhua* policy at this stage firmly focuses on physical access in terms of telephony, and then to the Internet. In Taiwan, since its household telephone penetration rate is 97%, the policy focus is on access to the Internet. However, both countries take bridging the regional divide as the policy priority.

Chapter 10

Conclusion

Chapter 10 serves to provide an overall review and discussion of this research, linking empirical observations to research questions and my theoretical framework. It is divided into the following sections. Section 10.1 provides an overview of digital divide policy-making in China and Taiwan; then restates each research question and provides the answer via synthesising the main empirical findings. Section 10.2 pinpoints the contributions of this thesis to theory in relation to epistemology, to the combination of STS and policy research, and to digital divide policy-making. Section 10.3 elucidates the contributions to policy-making while Section 10.4 discusses the limitations of methodology and the applicability of theory. Section 10.5 provides some insights for future research.

10.1 An Overview of this Research and Empirical Findings

This research has investigated the relationship between discourses, context and policy process in policy-making. Theoretically, it is inspired by the central questions of how policy problems become defined as well as how policy responses are subsequently used to solve these problems. Adopting an interpretive approach, it has emphasised the importance of discourse and context in the policy-making process (while recognising that the relationship between these two elements is complex). Empirically, this research has been motivated by the observation that existing literature on digital divide policy-making has focused on developed countries, and that developing countries has been neglected. Given these theoretical and empirical inspirations, this study uses specific illustrations to examine how two developing countries—China and Taiwan—managed to make their own digital divide policy.

10.1.1 An Overview of Digital Divide Policy-Making in China and Taiwan

This study has been inspired by a number of key research questions about how has the conception of the digital divide been transferred from its original social and economic context in the industrialised world to developing countries, such as China and Taiwan? It has focused upon how the broad social and economic contexts in a specific country, in this research, China and Taiwan, have shaped digital divide policy? In attempt to assess the relevance of global digital divide discourses for developing countries, the study

particularly highlighted the crucial role of contexts. ‘Context’ in policy research is important because it is ‘the entire context of events which may have an impact upon the future problems of policy’ (Lasswell, 1951: 4). The findings of this research do support this assumption, but they indicate a more complex process. The international context set up from the early 1990s to 2005, provides a point of reference for national digital divide framings, but not all of the globalising digital divide discourses are integrated into the national levels. Rather, it depends on the national contexts within which national digital divide policies are embedded. When investigating how China and Taiwan adopted globalising digital divide discourses, the concept of domestication was applied to examine how national policy-makers translate the term ‘digital divide’ into a Chinese one (the first level of domestication—linguistic domestication), how the digital divide is translated into policy discourses (the second level of domestication) and how these framings are interwoven with national contexts (the third level of domestication). This research also found that the framings are closely related to the actors who are involved in the policy-making process and further impact on the policy outcomes.

However, while the above provides a general summary of this research, one of the most crucial findings is that digital divide policy-making is a dynamic and complex process interwoven with contexts, discourses, actors and outcomes. Figure 10.1 seeks to capture some of this complexity by summarising the main findings in terms of four elements discussed in the empirical chapters. Each box corresponds to the research questions raised in Chapter 1. This figure highlights four elements—contexts, framings, actors, and outcomes—in digital divide policy-making, but does not imply a linear relationship. Instead, it serves to represent an analytical framework developed in Figure 2.2. I will now re-examine my research questions, and will go on to answer them in the next subsection.

Since context in policy research is important, and the ‘meaning of any detail depends upon its relation to the whole context of what it is a part’ (Lasswell, 1976: 218), the first research question I raised in Chapter 1 is:

***RQ1. Policy Definition**—How is the digital divide framed as a problem that needs to be solved within the international and national context? How is the digital divide framed internationally during the period 1990 to 2005, and how does this relate to the discursive framings of digital divide policy-making in China and Taiwan?*

This research located the root of digital divide discourses in advanced countries (i.e. the

US and EU), and found that these discourses were subsequently taken up by international organisations during the period between 1990 and 2005. Within advanced countries and international organisations, national competitiveness and economic development became the main concerns in the NII/IS and GII/GS initiatives. These concerns subsequently made contributions to digital divide discourses and gradually developed into five globalising digital divide discourses. In this research, these discourses serve as the international context from which national digital divide framings in China and Taiwan are selectively adopted. My study examined how these globalising digital divide discourses are domesticated by China and Taiwan (Chapter 6 and 8).

Apart from the international context, national contexts may provide a unique environment for an individual country to make their own digital divide policy. National contexts also equip the researcher with resources to scrutinise the dissimilarities between China and Taiwan. Therefore national contexts were investigated in Chapter 5 (for China) and Chapter 7 (for Taiwan).

In addition to framing the digital divide both nationally and internationally, the next research question asks: who are the actors in digital divide policy-making in these case policies?

*RQ2. **Actors and Outcomes**--Which ministries/institutes participate in policy-making, Cun Cun Tong in China and Digital Opportunity Centre/APEC Digital Opportunity Centre in Taiwan?*

After these elements—context, policy framings, participants—are unpacked, the next step is to conduct a comparison, dealing with the convergences and divergences in digital divide policy-making in China and Taiwan. Therefore, my third research question is:

*RQ3. **Comparison**--Where do similarities/divergences occur between digital divide policy in China and Taiwan? How does this relate to international/national contexts?*

In the next section, I will provide the findings to answer these research questions, and link them to the analytical framework produced in Chapter 2.

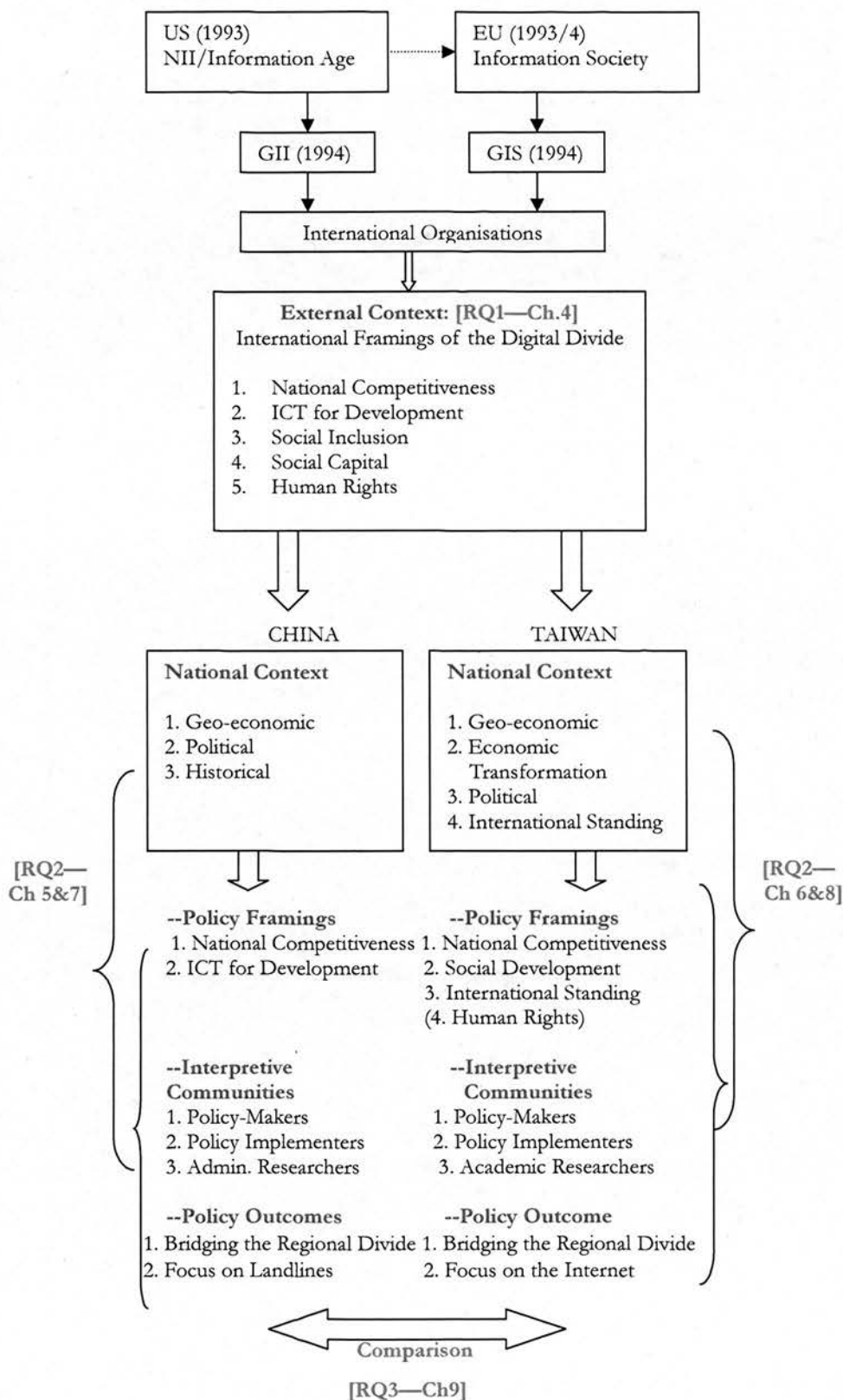


Figure 10.1 Overview of Digital Divide Policy-Making in China and Taiwan

10.1.2 An Interpretive Approach to Digital Divide Policy

In Chapter 1, I argued that an interpretive approach could elucidate how the issue of digital divide policy-making is embedded within both national and international contexts, and that this approach could thus open another window to scrutinise the issue from a more critical perspective. In Chapter 2, I provided an interesting finding by showing how and what conditions contexts matter in digital divide policy-making. I will now use my findings to unpack the complex role played by context in the way that digital divide discourses flow from international organisation (from the early 1990s to 2005) to China and Taiwan, and how they are domesticated in these two settings. This discussion will be based around the answers to my original research questions.

10.1.2.1 Domestication of Digital Divide Discourses by China and Taiwan

In this research, I used the concept ‘domestication’ to reveal how policy-makers in both China and Taiwan selectively take up the term ‘digital divide’ by picking a Chinese term (the first level of domestication), fitting it into policy discourses (the second level of domestication), and fitting it with national contexts (the third level of domestication). I demonstrated that in the course of policy-making, global/universal discourses have to be matched with local settings, and that they are always altered in the local policy-making process. Therefore, the next questions to be dealt with are: How are global digital divide discourses framed, and how are they domesticated by China and Taiwan?

RQ: How is the issue of the digital divide framed internationally during the period 1990 to 2005?

Concepts such as contextuality (Lesswell, 1951, 1976) and co-production (Jasanoff, 2005) suggest that context is of great importance in policy-making. For this reason, this research went back to the early 1990s to look for the trajectory of the term and concept of the digital divide (Chapter 1 and Chapter 4). In Chapter 4, I found that NII/IS initiatives impacted on the globalising digital divide discourses, and these further influenced the interpretation of the digital divide both in China and Taiwan to a large extent. After a selective synthesis, I categorised five digital divide discourses: national competitiveness, ICT for development, social inclusion, social capital, and human rights, which serve as the international context for this research. Figure 10.2 presents globalising digital divide framings along with the levels of the divide and relevant international organisations.

RQ: How does the international context relate to the discursive framings of digital divide policy-making in China and Taiwan? How is the digital divide policy framed at the national level?

However, these globalising digital divide discourses may not directly flow and be used in individual countries. A selective uptake and implementation takes place in terms of national domestication. According to the empirical findings, domestication is activated at three levels. The first level is linguistic domestication. With regard to linguistic domestication, China selected *shu xi hong gou* (a huge digital divide) to fit it into its national context in relation to its longstanding uneven national development, while Taiwan chose *shu wei lou cha* which does not suggest that the gap is huge but rather that it is different in degree. As far as policy discourses are concerned, both China and Taiwan take a technology-driven perspective on policy discourses. As discussed previously, this is one of the five discourses I discussed and synthesised in Chapter 4. I found that this technology-driven perspective was interwoven with the desire for economic development, which is overwhelmingly used in China's policy discourses in terms of 'national competitiveness' and 'ICT for development'.

However, not all of the globalising digital divide discourses are appropriated in China and Taiwan. In China's case, the interviewees rarely mention the framing of 'human rights', which was raised in the 2003 WSIS and became used in Taiwan. In Taiwan's case, high-ranking officials adopt the idea of human rights; however, this does not indicate that this framing leads in a straightforward manner to policy formation, here DOC within the *e-Taiwan* programme. This signals the complexity of the relationship between contexts and policy discourses, which can be explained in terms of national contexts. This is linked to the next research question.

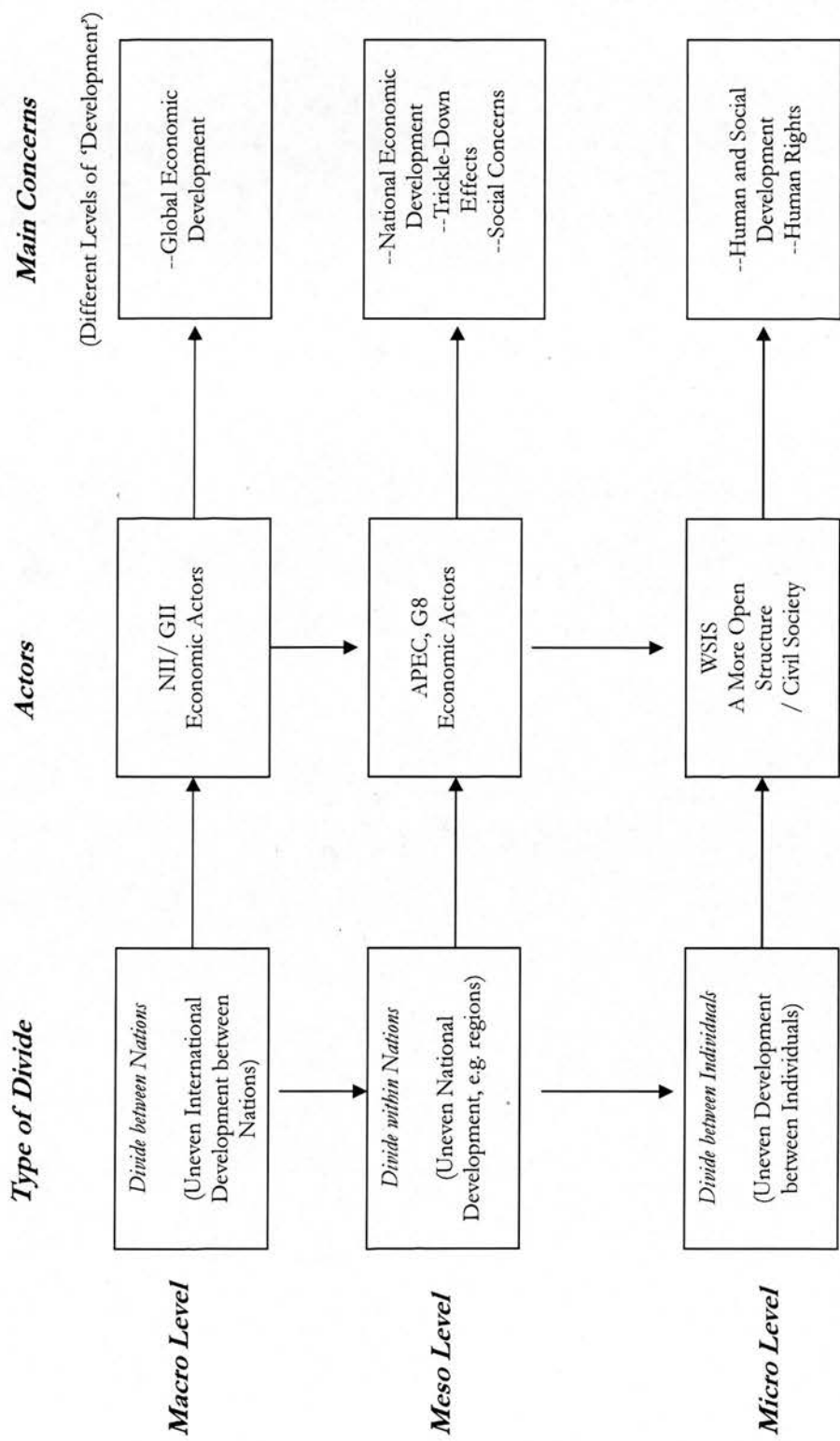


Figure 10.2 Macro, Meso and Micro Levels of the Digital Divide

One approach to investigate how digital divide policy is framed is through identifying the storylines in the policy process. Storylines play the role of rationalising policy-making (Næsje, 2002: 280). They are employed in framing via claims-making, myths, and boundary-setting. When we locate the social meanings of the Internet within these national contexts, we find that both international and national contexts influence the interpretation of the Internet in the case countries. That ICT can facilitate 'national competitiveness' and 'leapfrogging' is one of the recurrent storylines in Chinese digital divide policy discourses, which plays the role of rationalising digital divide policy-making in terms of its emphasis on nation-centred than people-centred development. This resonates with China's developmental context as discussed in Chapter 1 and 5, i.e. that China is eager to win the race in the third industrialisation since it has lost the previous two. In Taiwan, ICTs are also taken as a tool for national competition/economic growth, which is similar to the expectations of ICTs in China. In Taiwan, the framing has extended the goal to social development/community development as far as the Digital Opportunity Centre (DOC) programme is concerned. After 2003, since the WSIS summits promoted human rights in relation to the consideration of the digital divide, 'human rights' have surfaced in the media coverage and in a speech given by the Vice President Lu Hsiu-lien. However, in spite of slight differences in the framing of the Internet by China and Taiwan, the crucial issue is that the policy discourses of both settings are based on the belief that the Internet has the ultimate power to change society, and as a result both countries construct the Internet as a necessity for society.

In Chapter 4, I argued that at the international level, the digital divide is interwoven/cross-referenced with the frameworks of national development/economic development, inequality/inclusion; social capital/technological capital, and human rights. In Chapter 6 and 8, the national digital divide discourses were shown to resonate with those emerging from international contexts. However, the findings also show that, as we look at the national levels, the frameworks of the digital divide deduced from the international-level discourses do not completely fit into individual countries. In other words, respective national contexts do play a crucial role in framing national digital divide discourse.

To sum up, this research shows that the framing of the digital divide in both China and Taiwan is a technology and economy-driven policy in that it is included in national plans for economic growth in both countries. In China, digital divide policy is made by the leading committee in charge of Five-Year Plans, and the policy is integrated in a wider

policy project, e.g. *Go West, Construction of Socialist New Villages*, which is part of the whole project. In Taiwan, DOC/ADOC is integrated into *e-Taiwan*, which is also part of the national plan *Challenge 2008*. Overall, both of these national development plans are targeted at national economic growth.

10.1.2.2 Dynamics of Actors in Digital Divide Policy

RQ: Which ministries/institutes participate in digital divide policy-making?

Another relevant issue to policy-making is the actors and the manner of their involvement. Chapter 2 discussed the concept of actors in policy-making, e.g. Sabatier's 'advocacy coalition' (1988), Hajer's 'discourse coalition' (1995), Yanow's 'interpretive communities' (2000). This research drew on strengths of each of these concepts to observe and analyse the actors in digital divide policy-making in China and Taiwan. For instance, Sabatier's extended list of actors makes me aware of the role played by researchers in policy-making; Hajer's emphasis on policy discourses made by actors provides insights to scrutinise the discursive dimension in policy-making; Yanow's categorisation of three groups of actors clarifies the composition of actors involved in policy-making (I replaced this third group 'users' with 'researchers' for analytical convenience, because the public is missing in digital divide policy-making). However, none of these concepts can precisely represent the actors in digital divide policy-making in China and Taiwan. The reasons for this will be elaborated in the following discussion in which I will compare the differences between these concepts and analyse the actors involved in digital divide policy-making in China and Taiwan.

First of all, I discuss the composition of actors suggested by these concepts, in particular that of an 'advocacy coalition' and that of a 'discourse coalition'. In addition to these two concepts, the elitist model is included for comparison because this study finds that it may be much more helpful than the other two to explain the Chinese case. In the elitist model, access to policy-making is restricted (March, 1998: 5). Actors are composed by a group of core elite. In an 'advocacy coalition', actors are derived from a dispersed elite—a dispersed array tied by linkage to action and policy. In a 'discourse coalition', the actors are highly dispersed, and anyone can be linked in a discourse/framing. In this sense, the composition of actors in China's digital divide policy-making might perhaps seem to conform to that in policy network theory. The high-ranking government policy-makers are responsible for policy framing and policy-making. And technocratic administrators are in charge of policy implementation.

There is an absence of openness to a wider public. Even though people from academia are involved in policy-making, as for example, illustrated by some of my interviewees, these individuals also hold crucial positions in the central government. Additionally, there are the researchers who conduct digital divide policy that are affiliated with MII. In comparison, Taiwan's case presents a more open arena with regard to the composition of the actors involved in policy-making. Apart from the governmental officials, a non-government organisation is involved in problem framing and policy-making. Academic researchers are in charge of digital divide reports. However, a similarity between China and Taiwan is the absence of the public in digital divide policy-making.

Secondly, I discuss the concept of ideas/beliefs/framings in advocacy coalitions, and discourse coalitions. The concept of advocacy coalitions argues that each coalition is tightly linked to a core belief and action; the boundaries between coalitions can be clearly drawn. In contrast, the idea of discourse coalitions emphasises that the boundaries between coalitions are fluid. Actors are linked by discourses instead of by a core belief and action. In China's case, and drawing upon the interviews I conducted with interviewees holding government positions, digital divide policy-making presents a highly centralised model. The tight relationship between actors presents a core value in utilising informatisation to steer economic growth and national competitiveness. There are hardly any other visible coalitions in the course of policy-making—there is little scope for public articulation of competing programmes of action, and policies, once determined upon, are presented as consensual and final. The actors I interviewed are composed of a technocracy that is driven by the desire for national competitiveness and economic development. In contrast, in Taiwan, the policy-making process demonstrates openness to a non-government organisation and to academic researchers. As a result, the more diverse array of framings described earlier are able to emerge.

Overall, the big difference in the composition of actors I interviewed and involved in the policy-making process between China (*Cun Cun Tong*) and Taiwan (DOC/ADOC) is the degree of openness in the policy system. As can be observed in this research, those government actors who are involved in China's digital divide policy-making are generally the technical elite who possess a common internalised belief that economic growth and national competitiveness can be reached via the adoption of ICTs.

When we attempt to investigate this centralised, largely-closed policy system in China, we need to consider certain epistemological issues. In particular, it is difficult to observe

the roles of broader discourse communities in China. Although from the literature available concerning the wider influence in policy making (Wang, 2008), potentially broader discourse communities must play a role in shaping the broader views of decision-makers and their trusted experts, the fact that policy deliberations primarily occur behind closed doors makes it impossible in most circumstances to directly observe the influence of broader discourses. It was clear, for example, that the Chinese government is rather sensitive about matters of uneven economic development and its potential impacts on public responses. This leads on to further a methodological issues that I will discuss in section 10.4.

In spite of the differences highlighted by the above comparison, this research found that the actors I interviewed and played in China's Cun Cun Tong policy and Taiwan's DOC/ADOC programme can be separated into three groups. The first group is composed of high-ranking officials who are in charge of policy-making, drafting policy but not actually doing policy implementation. The second group is composed of ministerial-level officials who take responsibility for policy implementation. The third group is composed of researchers who conduct digital divide reports, both researchers within the ministry and academic researchers included. Each of these groups plays a central role in the digital divide policy process at different stages.

Figure 10.3 presents the actors in these two specific digital divide policies. It is found that, in China, high-ranking officials play central roles in framing and policy-making, with MII taking responsibility for policy implementation. An interesting point that this figure aims to highlight is that, while the digital divide is a relevant concern to many ministries, MII eventually gained an exclusive role in policy implementation. The reason for this power shift is on the grounds of the official authority and administrative power which MII commands. In Taiwan, digital divide framing was emerging before the official government policy was made in 2003. In this country, it is top-ranking policy-makers that play central roles at the policy-making stage, while the Computer Centre of MOE is in charge of policy implementation, because this ministry possesses the financial resources required for implementation. However, criticisms have been made of this situation because other actors argue that MOE pays more attention to physical access than to other issues pertinent to the digital divide, e.g. skills, literacy, etc.

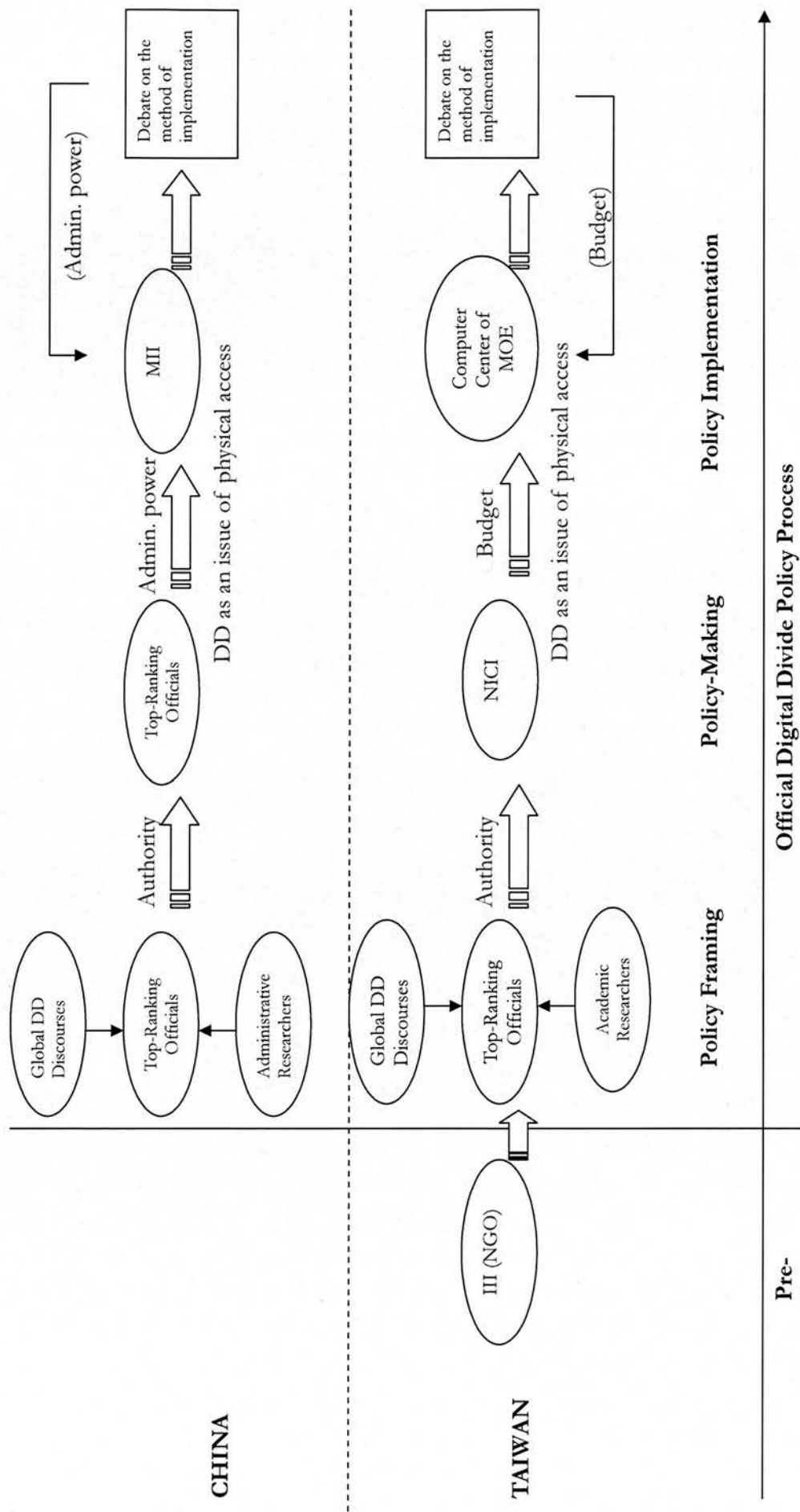


Figure 10.3 Key Actor(s) in Pre- and Official Digital Divide Policy Process

10.1.2.3 Comparison between China and Taiwan

RQ: Where do similarities/ divergences occur between digital divide policy in China and Taiwan? How does this relate to international/ national contexts?

In this research, I introduced Bennett's concept 'convergence' (1991a, 1991b, 1992, 1997) to scrutinise the causes of policy convergences (see Chapter 2, section 2.3.5). Here I will answer this question with the consideration of contexts. This research demonstrated that international and national contexts matter in digital divide policy-making. Policy similarities can be explained by both the international context and local context. International policy discourses provide commonly available intellectual resources, whereas similarities in local contexts, for example a shared technocratic tradition in China and Taiwan, explain the technical focus in the digital divide policy of both countries. Additionally, local contextual factors are key in explaining diversity. The international and national contexts also impact the participants who are involved in digital divide policy-making. For example the technocratic tradition of China and Taiwan is a factor underpinning the choice of policy participants with science and technology backgrounds. These participants then learn and exchange experiences from international organisations and other countries through international conferences, official policy websites, and personal contacts.

Thirdly, the findings show a similar (influenced by the international context), and also different (influenced by their national contexts) policy process model in China and Taiwan. It is clear that both China and Taiwan have shown a top-down policy process in that their digital divide policies are influenced by the international context in terms of policy discourses and policy initiatives. They both integrate their own national contexts to develop their national digital divide policies, which allow them to influence their position in the international community. In the case of China, it is eager to show its capacity to not lag behind advanced countries and that it will not lose in the third industrial revolution. In the case of Taiwan, it also seizes the opportunity to present itself as a capable/independent country in international organisations. Therefore, for China and Taiwan, digital divide policy is not merely a policy to solve national problems but also a symbol to improve their standings in the global community.

Notwithstanding, there is difference between these national digital divide policy-making models. Looking at the process of national digital divide policy-making, it is found that China takes a centralised process to make policy. The policy-makers decided the Chinese

term to indicate the phenomenon of the digital divide, made the policy for bridging the digital divide, and adopted a political means to recruit telecommunication operators to implement the policy. By contrast, although the Taiwanese case also demonstrates a centralised model in digital divide policy-making, it also presents a more open approach to include non-government actors, and especially academic researchers. For example, the project of bridging the digital divide was developed by the civil society body, III, and then gained attention from the government; and it is academic researchers that conduct digital divide reports, instead of researchers affiliated with the government.

10.1.3 Relationship between Policy Discourses and Policy Implementation

This subsection deals first of all with the complexity of policy discourses, and secondly, with the gap between policy formation and implementation.

10.1.3.1 The Complexity of Policy Discourses

The term 'digital divide' and its meanings were novel for some policy-makers in China and Taiwan. However, the phenomenon of the so-called 'digital divide' has not developed solely from international discourses, as policy-makers in both administrations already have related ideas such as an 'information gap' in their minds even before this term was coined and imported from the US (following a series of *Falling through the Net* reports published in the mid-1990s). In Taiwan, they had even implemented the programme to build telecentres before the terminology 'digital divide' had been used in policy discourses. For example, before the 2003 WSIS, the non-government organisation, III, had taken actions to reduce the digital divide in the 1990s, and RDEC had embarked on building telecentres from 1999 onwards. However, it was not until the 2003 WSIS that the Taiwanese government had an official digital divide policy. The answer perhaps can be found from the literature on social learning in policy that I discussed in Chapter 2, and this is supported by the findings from Chapter 6 and 8. Through policy learning, the issue at stake that had not attracted widespread attention either in the media coverage or in the policy field prior to the US's series of digital divide reports now gained widespread popularity.

Consider this further. After this term was coined in the US, it was promptly appropriated into policy actions in Taiwan, e.g. III's efforts to promote computer use and RDEC's building of telecentres. However, because the term 'digital divide' did not appear in policy texts until 2003, when the first official digital divide policy was drafted,

these earlier actions cannot be interpreted in terms of the compelling rhetoric of digital divide discourse. Instead, it is possible that Taiwan's prompt actions following the US reports occurred because the phenomenon that these reports described resonated with the existing and emerging priorities of Taiwan's policy-makers. It is also possible that Taiwan wanted to prove something to international organizations by addressing this issue quickly. This assumption is supported by the findings which reveal that policy discourse works at the level of representation as well as impacting directly on actions taken. It is found that policy discourse targets different audiences. For example, Taiwan's digital divide policy-makers draw on the idea of human rights to frame the digital divide. This framing aims to show the external audience that Taiwan respects human rights. This observation is evidenced by the fact that the Vice President Lu Hsiu-lien promoted 'digital rights' at an international occasion when addressing a speech to an audience from outside Taiwan. However, as far as actual policy texts are concerned, this framing is not included at present.

10.1.3.2 Gap between Policy Formation and Implementation

In the above section, I presented the important role of context, showing the impacts of international and national contexts on the development of China and Taiwan's specific digital divide policies. Here, I am still arguing that the context is significant in policy-making, but focusing on the national context. I also justify my argument in another way that, without corresponding national contexts, the international framings may not be carried into the policy development and implementation. Taking Taiwan's case as an example, a high-ranking official in charge of digital divide policy promoted the idea of 'human rights' to frame the digital divide, however, this idea has not become embodied in policy-making and implementation. In considering why this has occurred, a range of potential factors can be identified. First of all, resource allocation may decide which ministry/institute has power in implementation. For example, the interviewee complained that due to the allocation of the governmental budget, it is the staff in the Computer Centre of MOE that conduct policy implementation. Secondly, discourses need to be related to specific institutional contexts and practices in which they can be meaningfully stated and understood (Hajer, 1995; Fischer, 2003: 90). In Taiwan's case, the gap between policy framing and implementation may be explained by the fact that the idea of a relationship between human rights and the digital divide is still in its infant stages, since this idea was first raised in the 2003 WSIS, and there is an absence of a corresponding legal system to embody this idea in Taiwan. Thirdly, as mentioned above, it depends on who the target audience is that the discourse/framing aims to reach. In

Taiwan's case, one of the enthusiastic officials, the Vice President Lu Hsiu-lien, promoted this idea in a public speech to representatives from other Asian countries. This was not an occasion for national policy-making, and the target audience was not the people of Taiwan. In this highly political occasion, she may have just seized the chance to advertise her long-promoted idea—human rights, by linking the global topic 'digital divide' to 'human rights', and presenting this to the participants from other countries. In this case, mentioning human rights in connection with the digital divide is no guarantee that this idea would be seriously considered in policy-making and implementation.

10.2 Contributions to Theory

10.2.1 Contribution to Research on the Digital Divide and Digital Divide Policy

This research provides an alternative approach to investigate the issue of the digital divide as well as digital divide policy-making. The existing literature on the digital divide is predominantly concerned with the dimensions of the divide (e.g. Servon, 2002; Mossberger, Tolbert, and Stansbury, 2003; Loader, 1998), be it cross-national or national. The common assumption behind the research mentioned above is that the digital divide can be identified and measured via ever-proliferating variables. However, it ignores a fundamental issue, which is how the digital divide is defined and interpreted. Some research, notably Robbins and Courtright (2002), has addressed the digital divide from an interpretive perspective. However, they only mentioned the framing process of the digital divide. They never move forward to stages of policy formation and implementation. In addition, their research was based on the US, which did not consider the issue of framing the digital divide in less developed countries. This thesis provides an alternative perspective to look at the interpretation of the digital divide within both international and national contexts in two developing countries. As I have shown above, the phenomenon of the digital divide is not novel, but it is the international and national contexts that foster this phenomenon as a policy problem. This is exactly what interpretive policy research hopes to investigate. In meeting this end, I developed an interpretive policy research rationale, and traced the history of digital divide policy in China and Taiwan to investigate how the digital divide is interpreted within international and domestic contexts. Therefore, epistemologically, this rationale shifts the concerns from a realist to an interpretive view of knowledge on the digital divide.

Continuing the above-mentioned shift of epistemology, the second contribution to

theory stems from the combination of STS and Interpretive Policy Research literature. As revealed in Chapter 1, the literature on the digital divide and policy research is scattered in separate fields, and lacks an effective integration. Additionally, STS literature that is useful in giving insights in integrating 'contexts' (e.g. Social Shaping of Technology, SST) and providing analytical concepts (e.g. technological determinism/interpretive flexibility) that address the framing of the digital divide has been long neglected in the digital divide literature. Therefore, this thesis takes the initiative to combine these two previously separated fields into an interpretive rationale to develop an analytical framework, which is a good example of the effectiveness of interdisciplinary inquiry as well as useful for theorising digital divide policy-making in developing countries.

Thirdly, the concept of 'domestication' is developed in this research to analyse how the English term 'digital divide' is translated and fitted into China's and Taiwan's digital divide policy discourses as well as their national contexts. Sørensen (1996) and Brosveet and Sørensen (2000) apply the idea of 'domestication' to explore the national appropriation of technology discourses. Their discussion suggests that policy actors would selectively appropriate generic messages about the social implications of technology and about technology policy, and reinterpret these according to their own individual and national perspectives, priorities, and contexts. The subsequent PRECEPT working paper (Graham *et al.*, 2008) further develops the concept of domestication (and the related concept of appropriation) from Sørensen (1996) and Brosveet and Sørensen (2000) in exploring the uptake and evolution of the concept of BPR. It analyses how a concept is selectively taken up out of one context and is transformed within a different context. However, it ignores linguistic domestication in the process of domesticating a concept in a different language context. For example, how do non-English speaking countries choose a term with their languages in order to indicate the concept in question? This thesis draws upon the current development of the idea of domestication and further develops three levels of domestication in terms of 1) linguistic appropriation; 2) fit to national policy discourse; 3) fit to the national setting, e.g. social and economic context. For the first level of domestication, as discussed in Chapter 6, China serves as a representative case in that the high-ranking officers discussed and finally selected one Chinese term amongst three to translate to the English term 'digital divide'. When Sørensen (1996) and Brosveet and Sørensen (2000) developed the concept 'domestication', what they considered is how a concept is carried and changed from one setting to another, e.g. non-linguistic translation. However, they did not consider linguistic translation. English or European researchers have overlooked this level of

domestication because of the broad accessibility of their mutual language. Overall, the three levels of domestication complement and operationalise the use of 'domestication' for future research, particularly that which is conducted in non-English speaking countries.

Finally, as far as the digital divide policy in developing countries is concerned, this research makes a contribution in terms of drawing out the digital divide policy model(s) in China and Taiwan. This research shows a generic centralised model of national digital divide policy-making, but with a slight difference when considering national contexts. Moreover, I also map out the architecture of digital divide policy at the national level, and this provides a blueprint for future research in digital divide policy-making in these countries.

10.2.2 The Contribution to Policy Research

10.2.2.1 How Does Context Affect Policy?

First of all, it is widely recognised that 'context' is important in policy-making. However, unless we identify the ways in which context impinges on the content, process and outcomes of policy-making, it remains something of a 'slippery concept' (Jasanoff, 2005: 22). This research identified the components of international and national contexts that impact on digital divide policy-making (Chapter 4, 5, and 7), which will be useful in further research on this topic.

Secondly, this research supports the notion from STS and interpretive policy research that context is of great importance in shaping both technology and policy-making (see Chapter 2). Some researchers have further noticed that the definition of the digital divide conceived by policy-makers has a significant part to play in subsequent policymaking (e.g. Servon, 2002). In this thesis I have demonstrated the important role that contexts play in digital divide policy-making, which shows that the policy process is an historical process shaped by contexts, both global (e.g. international digital divide discourses and initiatives) and local (national policy-making processes, policy-making traditions and styles, and local exigencies).

Adoption of an interpretive approach can help because 'the analyst is to show whether particular definitions "homogenise" a problem, that is, render the problem understandable by situating it in a wider social frame, or whether definitions lead to a

“heterogenisation” that opens up established discursive categories and hence the possibility of new courses of action’ (Fischer, 2003: 85). This thesis reveals that the framings of the digital divide in China and Taiwan are to some extent similar or coherent with those from the US and international organisations. For example, both China and Taiwan adopted the framings of national competitiveness and national growth in digital divide policy-making. Particularly in China, the digital divide has been homogenised as an issue of physical access, and any action taken by the government (*Cun Cun Tong* policy, for example) is the provision of landlines for each village. Other global digital divide framings, e.g. social inclusion, social capital and human rights are absent in digital divide policy-making.

10.2.2.2 What is the Relationship between Policy Discourses and Policy Formation?

Interpretive policy research emphasises the important role played by discourses/framing in policy-making. The findings in my research conform to this proposition. They provide ample evidence that discourse does matter in China’s and Taiwan’s digital divide policy-making, *Cun Cun Tong* in China and DOC/ADOC in Taiwan. For example, China overwhelmingly frames the digital divide as a barrier to national competitiveness and economic growth, which has further reduced around a technocratic framing of the policy around provision of physical access, without mentioning skill, literacy, etc.

However, discourse sometimes matters, but sometimes does not (Schmidt and Radaelli, 2004: 184) in the explanation of policy-making. Or to be more precise, its influence on policy outcomes seems to vary between cases. Action may also be taken in the absence of framing of a policy problem. In addition to the findings shown above, my research also finds that relationship between discourses and policy-making is not straightforward and linear as some interpretations of discursive shaping might imply. For example, Taiwan had already embarked on relevant digital divide policy when the term ‘digital divide’ was coined from the US in the mid-1990s. III, a non-governmental institute, had taken action to bridge the digital divide in the 1990s, and later a governmental agency RDEC built community telecentres in 1999. Both III and RDEC began to bridge the digital divide before the government formulated the official digital divide policy in 2003. This reveals that the Taiwanese government was doing digital divide policy before this term was in use globally in policy-making. Taiwan’s case shows that some inclusion strategies arose within domestic departments in advance of alignment with international digital divide discourses, as a result of pre-existing concerns within the national policy settings.

10.2.2.3 Gap between Policy Formation and Policy Implementation

This thesis finds that there is another gap between policy formation and policy implementation, the exploration of which reveals the complexity of policy discourses. For example, some policy texts were found to emphasise social development, whereas the implementation predominantly centres on the equipment of infrastructures. In Taiwan, the framing of the need to bridge the digital divide in policy texts touches upon the issue of social development. However, the priority of digital divide policy is on national economic development in terms of the provision of computers and physical access. It seems that this gap may be primarily due to the resource allocation between the actors involved. In order to consider this idea further, it is first necessary to identify the actors in digital divide policy-making.

Interpretive policy research emphasises the role of actors from the perspective of the interpretive community, which pays attention to how the policy problem is interpreted by actors. This approach undoubtedly expands the role of policy-makers to the interpretive aspect, be it in the early stage or middle stage of policy-making and policy implementation. Yanow (2000) identifies at least three communities of meanings: policy-makers, implementing agency personnel, and affected citizens or clients. This research conforms to Yanow's identification of the first two communities, but replaces the third community with researchers that are delegated to conduct digital divide reports. Furthermore, although the actors in China and Taiwan can be categorised into these three groups, they have slightly different configurations. The first group I identify in this research refers to those with high-ranking governmental positions, who are shaping and deciding policy priorities. In China, this group is identified as those making national development policy where digital divide policy is included. In Taiwan, this group is identified as NICI, which is responsible for the national technology plan. However, before NICI had taken responsibility for official digital divide policy-making, the non-government organisation III had contributed to the issue of bridging the digital divide. The second group refers to those ministries/institutes in charge of policy implementation. In China, it is MII; in Taiwan, it is the Computer Centre of MOE. According to the findings, actors in this level to some extent have more practical power in policy implementation because they have financial advantages. The third group participating in digital divide policy is those researchers in charge of conducting digital divide reports. In China, these researchers are affiliated with MII, while in Taiwan these researchers are from academia. Overall, the configuration of actors in Taiwan reveals

openness to input from academia and other non-state actors. My analysis demonstrates that the process of digital divide policy-making involves a complex group of actors, which suggests that in further research, the delineation of actors according to the roles they play may be necessary and helpful in developing a thorough understanding of the policy process.

However, regarding the identification of these three communities, question could be raised about how I identified them, and whether anybody was left out? Were there invisible actors in the digital divide policy-making? This is related to the methodological limitation that I was unable to observe 'civil society behind closed doors'. I will reconsider and answer this question in section 10.4.1.

10.3 Providing Reflexivity for Policy Making

This thesis adopts an interpretive policy research approach to touch upon a currently worldwide popular topic 'the digital divide', and focuses on how the definition of the policy problem impacts subsequent policymaking. The findings suggest that 'the way in which a particular problem is defined leads to a specific policy solution' (Servon, 2002: 6). However, there may be different ways to resolve a problem, e.g. redefine the problem in terms of what the government can achieve, or assert that the problem has been resolved. Some policies are geared towards political goals, e.g. winning consent.

There are many steps and gaps between the various stages in the policy cycles—from problem definition to policy formation to policy implementation to policy outcomes. Not all policies can be readily adopted; it depends on how politically doable they are. Furthermore, not all policies have desired outcomes, it depends how amenable the problem is to political resolution.

The findings in this thesis show that both China and Taiwan to some extent managed to influence the framing of the digital divide as well as making and implementing digital divide policy in ways that are specific to their particular contexts. Since the governments have the power to do this, policy-makers could also seize this opportunity to make alternative framings and policies. As the findings show, these two settings take the digital divide as a technological issue and make digital divide policy for economic growth and the improvement of international standing. I am not criticising this framing; as shown in Chapter 4 and 9, it is unavoidable both because it seems to be an international trend and because at their current developmental stages with their historical views of technology,

these framings have important material implications both for China and Taiwan.

However, since the governments are heavily involved in framing the digital divide as well as making and implementing digital divide policies, the policy-makers do have opportunities to make alternative framings. The findings show that currently in Taiwan, a few politicians have learned and begun to recruit alternative framings of the digital divide, i.e. human rights, even though this framing is still at an infant stage in the policy-making process. But this framing appears to be being employed for an external audience, and is not central to policy implementation. Also, from the discussion in Chapter 4 and Chapter 9, I found that framings can influence policy outcomes. Therefore, alternative framings may help expand the policy vision, and help developing countries not only catch up with advanced countries in terms of national economic growth and competition regarding ICTs, but help all individuals to make use of ICTs in a way that has relevance and benefits for their own lives.

10.4 Applicability of Theory and Limitations of Methodology

10.4.1 Applicability of Theory

This research intended to borrow two key analytical concepts—storylines and discourse coalitions—from Hajer's discourse analysis. The intent was to analyse digital divide policy-making in China and Taiwan, and to investigate *Cun Cun Tong* policy and DOC/ADOC programming. However, since Hajer's theory is developed from a more open society such as exists in Europe and the UK, some reflections must be made concerning the applicability of Hajer's theory in a less open society.

Hajer's discourse analysis is situated in a more open society, e.g. EU and UK; this context (wherein the theory developed) undoubtedly recruited a broader range of actors in the policy debate. This presents a deficiency when applying discourse coalitions in the analysis of empirical data, particularly in the case of China. China is still undergoing a rather closed policy making process. Thus, the actors I identified as being involved in making discourse regarding the digital divide and the interviewees I recruited from amongst these in the course of the fieldwork may present a rather incomplete picture – and less complete than the scholarly literature would indicate as being ultimately desirable, (though I have tried my best to overcome this deficiency). Based on the available data collected and analysed, in the case of China, the actors present to be composed by a technocratic elite group. A diversity of discourse coalitions seems not

observable at this moment in time.

This deficiency may direct our attention to the other concept I explored: storylines. It raises some concerns as to its applicability. In Hajer's theory, storylines are used to delineate different coalitions. As discussed above, since the discourse coalitions are not readily observable in the Chinese policy-making systems, the concept of storylines may encounter certain difficulties when it comes to practical application. In this research, however, the concept of the storyline is taken as a useful mechanism for analysis. Drawing upon Hajer's conceptualisation (1995: 56), the storyline 'is a generative sort of narrative that allows actors to draw upon various discursive categories to give meaning to specific or social phenomenon.' Following this definition, storylines such as national competitiveness, national growth, etc., are indeed well applied in the framing of the digital divide and consequently support the digital divide policies which have been made, e.g. *Cun Cun Tong* in China. Therefore, I use Hajer's concept of storylines to explore changes to the digital divide policy as it travels to China and Taiwan and is subsequently implemented in these two case countries (even though I cannot use it to explain the mechanism by which discourse coalitions operate: I was unable to observe these).

By contrast, discourse coalitions in Taiwan are emerging among the interviewees and the storylines for framing the digital divide are extending across a much broader range of issues, including everything from national growth to human rights. Different storylines are surfacing in the policy discourses, even though they are not embodied in policy-making and implementation.

As mentioned above, Hajer's theory seems to have limited applicability in a less open society, and may not be fully tested in my research. However, adopting the concept of domestication for analysis, the processes of discursive transformation can be observed even in contexts where I am unable to observe the influence of a discourse coalition. In addition, it does not go against either the epistemology of social construction or the analytical framework of interpretive policy research to say that the way a policy problem is interpreted has significant impact on the subsequent policy-making and any resulting implementation within different contexts.

10.4.2 Limitations of Methodology

The limited applicability of Hajer's theory is embodied in the research design of this research. The limitations of methodology in this thesis result primarily from the black

box of China's policy process. As described in Chapter 3, it was very difficult to make appointments with my interviewees. Some areas of decision-making remain closed off. Although the scholarly literature on China's political process mentions a wider influence on policy making, the voices outside the Chinese government are not available in my current research. As a result, and thanks to the snowballing method, most of my limited numbers of interviewees were elite policy officials. The weakness of public participation, e.g. public contestation of policies in plural media and policy fora, makes it harder to track discursive processes. I am aware that this methodological limitation may impact on the findings. For example, the digital divide is defined by the limited range of interviewees within the government who have access to technology policy-making.

These limitations are compounded by the amount of time available and by budgetary restrictions. In addition, the adoption of a comparative study to investigate the digital divide policy process also produces another methodological issue. Here, I discuss these limitations and suggest possible directions for future research.

First of all, I had access to a limited number of interviewees overall and to a much narrower range of actors in China than in Taiwan. This raises concerns about whether a small sample of interviews may result in problems such as the absence of key constituencies, the lack of diversity (Ritchie, Lewis, and Elam, 2003: 85), or the creation of some bias for research. However, although the number of interviews is limited, I am relatively confident that I did include important figures within the government in digital divide policy-making. This is because I used a snowballing strategy to locate my interviewees, as shown in Chapter 3. I am also aware that adopting a snowballing method may have its methodological limitations, e.g. restricting the interviewees mainly to those who are holding positions within the government.

As far as differential access to interviewees in my case countries is concerned, there is no intrinsic difficulty in talking to people outside the government in China. However, due closed modes of policy deliberation in China, it is difficult for the researcher to trace the existence or operation of wider networks of influence beyond government circles. Another reason for the narrower pool of interviewees in the case of China is that the digital divide policy in China is still in its infant stages, and there was no given policy map to follow before I conducted this research and drew one (Chapter 6). Additionally, Chinese policy-makers are conservative and cautious about accepting interviews, and Chinese academics were very sensitive to the questions the interviewer asked, especially because the interviewer was from Taiwan, which for them raises

national security concerns. These constraints limit the findings in this research as they only present a subsection of policymaker opinions. This limitation can hopefully be addressed in the future when the policy-making process in China becomes a more open one.

Nevertheless, a small sample of interviews can also work in qualitative research if purposive sampling has taken place (Ritchie, Lewis, and Elam, 2003: 85). As mentioned before, the policy-makers in this research are categorised into three groups through the strategy of snowballing. I did locate the key interviewees within the government for this research, all of whom gave first-hand information that complemented those policy documents I had investigated prior to entering the field. However, purposive sample raises a further question about whether and how the process of purposive sampling may shape research findings. Therefore, it must be highlighted that the findings of this research will only represent opinions from these three groups of interviewees; limited access and certain time/financial pressures prevented a more extensive examination. However, I have attempted to grapple with these practical difficulties and to give a comprehensive account of the process as far as is possible.

The second limitation of this thesis also comes from the research choices I made throughout. I used newspapers to secure second-hand interviews in order to overcome the fact that some important government officials were not available for personal interviews. I did not make analysis of media coverage in the digital divide divide a primary methodology. This points to trade-offs in the research choices taken. Other methodologies, e.g. content analysis, might have had certain advantages—allowing me to track discourse coalitions outside official government circles. However, in the case of China, and for digital divide policy where there has been little evidence of public controversy, there were limitations in the value of published sources. I opted for discourse analysis based upon detailed qualitative methods, i.e. interviews because of my interest in understanding the framing process. This undoubtedly brought problems and limitations with it, as I discussed in my earliest paragraphs. However, there is no ideal research design, and in this case the practical constraints were not insignificant. Future work could certainly address other methodologies in order to offset these weaknesses.

The third crucial limitation of this thesis is that doing a comparative study confronts the researchers with difficulties in the depth and precision of data analysis. As Stake argues, ‘focusing on comparison detracts from the intensity of single case description and thus can lead to less precision’ (Stake, 2000, cited in Ritchie, Lewis and Elam, 2003: 50). This

limitation may be reflected in my analysis. However, the aim of this research is to understand national digital divide policy-making in developing countries, and it is necessary to include at least two settings to understand their similarities and dissimilarities, and to sacrifice some details which are not essential for comparison.

A related issue that needs to be raised here is how to conduct international comparative research, i.e. how to actually compare two policy nexuses in different states? This issue can be discussed in terms of the purpose of doing a comparative study. In theory, the purpose of the comparison is to develop, test, and refine the existing theory (Hopkin, 2002: 249). Therefore, there are existing variables for comparison. However, the purpose of comparison in this research was not to test an existing theory, but to try and build a policy model for digital divide policy-making in the developing countries via qualitative comparative research – primarily because there is no existing digital divide policy-making model to be tested. To meet this end, the case number cannot be larger than two or three cases (Hopkin, 2002). In practice, the researcher needs to have a comprehensive understanding of the case countries, and needs to then look for elements that explain the similarities and differences between cases. For example, in this study I lay out the selective international context (the earlier 1990s to 2005) for China and Taiwan in order to understand their similarities; I also pinpoint their respective national contexts in order to account for both similarities and dissimilarities. In so doing, digital divide policy-making models are created for both settings. These models provide a point of reference for future research.

10.5 Suggestions for Future Research

As a developing country with rapid economic development and a huge population, China is a rather unique case for investigating the policy process in bridging the digital divide. Therefore, for future research, the specific lesson learnt in this study is the need to adopt multiple methods to overcome the difficulties of access, i.e. doing thorough documentary research before entering the field in China. According to the experience from western academia, following China's reform policy in 1978, it 'became possible to interview Chinese officials systematically in different ministries and research institutes' (Lieberthal and Oksenberg, 1988: 19). The 'sources became more readily available, data improved and fieldwork and interviews with those working in China became possible' (Saich, 2004: 233). With the advent of information technology in China, researchers can get access to resources much more conveniently than before, e.g. via government official websites (Fravel, 2000). According to my own experience, official governmental

websites do provide considerable help before entering the field. In addition, MII Ministers' official email-boxes⁹¹ serve as another useful channel for getting access to sources. However, personal contacts are the most important resource when doing research in China. Afterwards, using the snowballing strategy can make it easier to locate additional interviewees. Apart from the specific suggestions for doing research in China, three broader suggestions for doing digital divide policy research are revealed below.

Firstly, as new research in this field, this thesis makes an important contribution by drawing on the data collected in order to map out the architecture of digital divide policy at the national level. However, in bridging the digital divide, local level governments contribute much in implementation. Research on local level governments could adopt a bottom-up perspective to scrutinise the implementation of digital divide policy. Additionally, researching local level government may provide more detailed insights into the policy process via the examination of local contexts, e.g. political and economic contexts, local culture, and the phenomenon of the digital divide, etc. Thus, future research could build on this mapping and examine policy-making at more micro levels within the case countries, for example the provincial levels in China.

Secondly, the research ends up with a more restricted range of interviewees than I had hoped for. This research focuses on policy-makers that have positions of power in making and implementing digital divide policy. The findings provide an approach that centres upon policy elites to understanding digital divide policy-making. In future research, alternative approach may be interesting to investigate how people outside the government interpret digital divide policy and how this impinges upon the deliberations of policy-makers. Moreover, interviews could also be conducted with those citizens living in remote areas who represent the targets of digital divide policy.

Thirdly, this research set up a time span of the international organizations and events concerning the issue of the digital divide from early 1990 to 2005. However, the debate surrounding the digital divide and relevant policies to bridge that divide will be an ongoing global issue. The future research can expand the timeframe and look at these issues within a wider time period, investigating how they have impacted on digital divide policy making in individual countries.

⁹¹ MII's official website provides the mechanism called 'Minister's Email Box' to answer enquires from the public. The Minister will not answer the questions himself. They are delegated to the staff that is in charge of the issues in question. I have located my data via this channel when I encountered follow-up questions to ask after the fieldwork.

Fourthly, both in China and in Taiwan, digital divide policy is a novel policy field that has only emerged for one decade or so. In this brief time period it is difficult to assess the impacts of the policy which has been developed. Over a longer period, it may be possible to observe framings of policy problems, and the subsequent policy-making and policy outcomes in a more comprehensive manner.

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Appendix

1. List of Interviewees

This is the list of my interviewees in both case countries. For the purpose of anonymity, only the areas they fall into (e.g. academia/policy/in-between) are provided without detailed positions and identities. The dates interviews were taken are also attached.

China (CH)

In-between/CH01/Personal Interview/April 2005; January 2006

Academia/CH02/Personal Interview/April 2005; January 2006

CNNIC Researcher/CH03/Personal Interview/April 2005

Journalist/CH04/Personal Interview/April 7, 2005

Businessman/CH05/Personal Interview/April 2005

Academia/CH06/Personal Interview/April 2005

In-between/CH07/Personal Interview/January 2006

Academia/CH08/Personal Interview/January 2006

In-between/CH09/Personal Interview/January 2006

Academia/CH10/Personal Interview/January 2006

Academia/CH11/Personal Interview/January 2006

Policy/CH12/Personal Interview/September 2006

Policy/CH13/Personal Interview/September 2006

Academia/CH14/Personal Interview/September 2006

Policy/CH15/Email Interview/September 2006

Policy/CH16/Email Interview/September 2006

Policy/CH17/Email Interview/September 2006

Policy/CH18/Telephone Interview/September 2006

Academia/CH19/Email Interview/September 2006

Policy/CH20/Email Interview/October 2006

Taiwan (TW)

Academic Researcher/TW01/Personal Interview/March 2005

Policy/TW02/Personal Interview/March 2005; November 2005

Policy/TW03/Email Interview/March 2005

Policy/TW04/Personal Interview/March 2005

Policy/TW05/Telephone & Personal Interview/March & November 2005
Academic Researcher/TW06/Personal Interview/November 2005
Policy/TW07/Personal Interview/November 2005
Policy/TW08/Personal Interview/November 2005

2. List of Policy Documents and Survey Reports

Foreign and International

US

Survey Reports

Falling Through the Net: A Survey of the 'Have Nots' in Rural and Urban America. July 1995.

Falling Through the Net III: New Data on the Digital Divide. 1998.

Falling Through the Net: Defining the Digital Divide. 1999.

Falling Through the Net: Toward Digital Divide Inclusion—A Report on Americans' Access to Technology Tools. October 2000.

A Nation On Line: How Americans Are Expanding Their Use of the Internet. February 2002.

G8

Policy Documents

Okinawa Charter on Global Information Society. Okinawa, July 22, 2000.

Transfer Digital Divides to Digital Opportunity. Kyoto, 2000.

Digital Opportunity for All: Meeting the Challenge: Report of the Digital Opportunity Task Force. 2001

ITU

Policy Document

Plenipotentiary Conferences, Strategic Plan—Bridging the Digital Divide. 2002

Bridging Digital Divides—Approaches and Best Practices. 2005.

APEC

Policy document

The New Economy in APEC: Innovation, Digital Divide and Policy. 2002

WSIS

Policy Document

Declaration of Principles. 2003.

Plan of Action. 2003.

Tunis Commitment. 2005.

Tunis Agenda for the Information Society. 2005.

China

--Policy Documents

Five-Year Plans

Go West (Explore and Develop the Western China)

Cun Cun Tong (Get Every Village Online)

E-School

Village Universal Service—Trail (農村通信普遍服務—試行方案)

Village Universal Service—Cun Cun Tong (農村通信普遍服務—村通工程實施方案)

Opinions on Promotion of the New Socialist Villages (關於推進社會主義新農村建設工作的意見)

--Survey Reports conducted by CNNIC, 1997-2007

Taiwan

--Policy Documents

E-Taiwan, in Challenge 2008: the 6-Year National Development Plan. 2002.

--Survey Reports

Digital Divide Report. 2002.

Digital Divide Report. 2003.

Digital Divide Report. 2004.

Digital Divide Report. 2005.

Digital Divide Report. 2006.